

The **CHAUTAUQUAN**

*A Magazine of
Things Worth While*

**TREE
NUMBER**

*June
1905*

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THE CHAUTAUQUAN

A Monthly Magazine of Things Worth While

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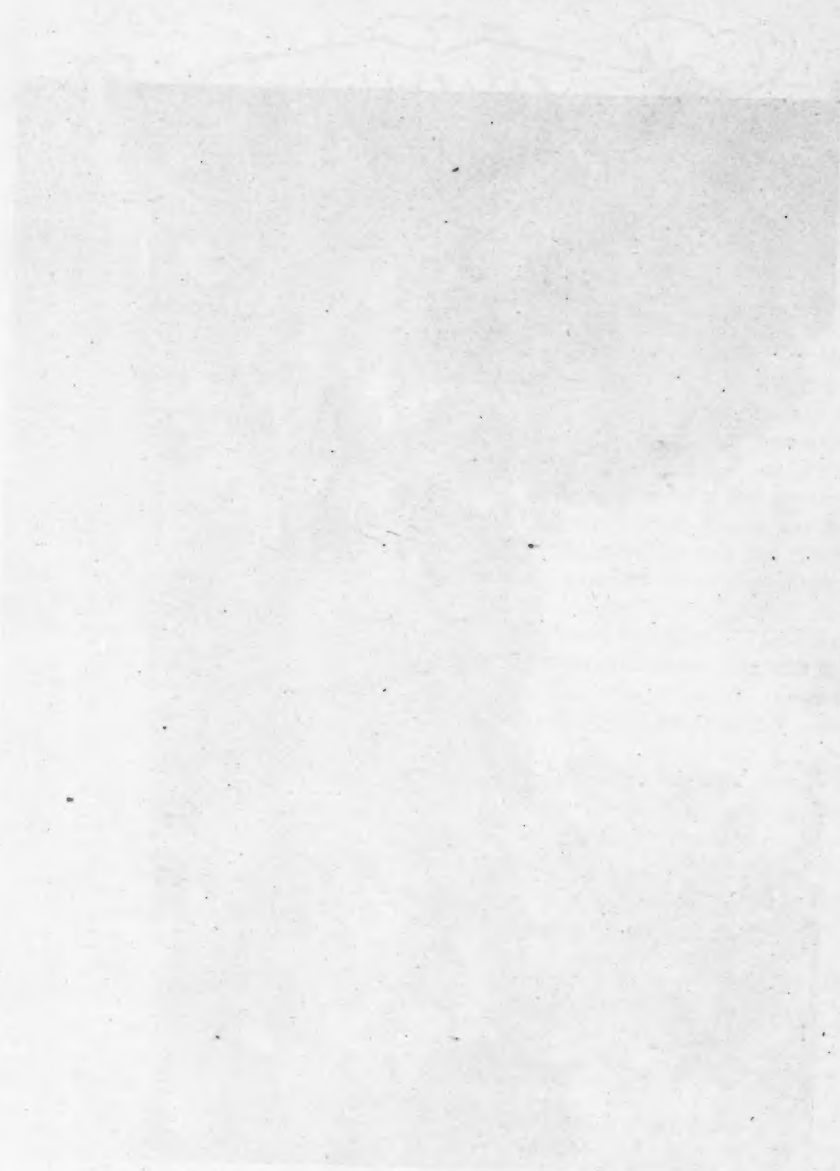
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THE CHAU-PAU-QUAN





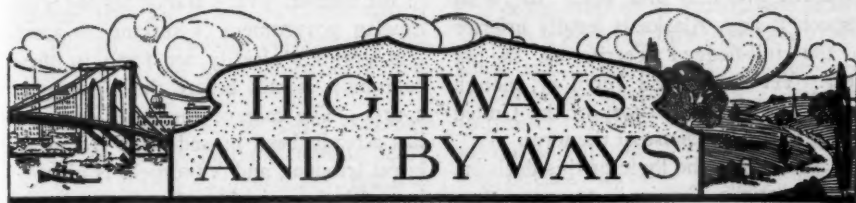
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THE CHAUTAUQUAN

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JUNE, 1905.

No. 4.



BY a series of decisions now historic the United States Supreme Court established the principle that the Constitution does not "go with the flag"—that is, that it does not extend of its own force, without appropriate congressional action, to possessions or territory acquired by purchase or conquest. These decisions, as intelligent citizens are aware, apply to Porto Rico, the Philippines and Guam. These insular possessions are American territory, of course, but they are not incorporated into the United States and may be governed "outside the Constitution."

At an early stage in the animated, not to say stormy, discussion of our "colonial question" certain writers directed attention to the peculiar status of Alaska in the light of these decisions. That "possession" had been acquired by purchase from Russia, and the treaty of cession provided for the bestowal upon the Alaskans of the rights of American citizenship. But it had never been "incorporated;" it was not a Territory of the United States, and it was governed by a congressional code of a very crude and unsatisfactory character. Many provisions in that code were enacted, tacitly at least, on the theory that the Constitution did not apply to Alaska. This is notably true of the tax and jury laws.

Last month the Supreme Court handed down a decision in a case involving the validity of the jury provision of the Alaskan code. It held that the inhabitants of Alaska, like those of organized Territories and States, must be tried by com-

mon law juries where the offenses charged are such as to require trial by jury under the Constitution. The Alaska code provides for a jury of six men.

The government had contended that the Bill of Rights, which guarantees trial by a common-law jury of twelve, was not in force in Alaska, because the possession had not been made an integral part of the United States. Moreover, the government had urged, "even if Alaska was incorporated, the provisions of the Sixth Amendment were not controlling on Congress in view of the fact that Alaska was not an organized territory." The court (Justice Brown dissenting) said that the first point was wholly devoid of merit, because Alaska, by the treaty with Russia, became part of the United States, and the doctrine as to unincorporated territory was inapposite and irrelevant to the case. With regard to the second argument, which implied that only in organized territories is Congress limited by the restrictions of the Constitution, the court said:

Without attempting to examine in detail the opinions in the various cases, in our judgment it clearly results from them that they substantially rested upon the proposition that where territory was a part of the United States the inhabitants thereof were entitled to the guarantee of the Fifth, Sixth and Seventh amendments, and that the acts of Congress purporting to extend the Constitution were considered as declaratory merely of a result which existed independently by the inherent operation of the Constitution. . . .

By implication this important decision asserts that *the whole Constitution* is in

force in Alaska. It follows that several other parts of the code under which it is governed are null and void. In what respect, if any, Alaska is legally inferior to the full-fledged Territories, is not clear. Yet she is not a Territory, though she is part of *the* territory of the United States in the full sense of the term.

According to the logic of this decision, "the American Empire," to use Marshall's phrase, comprises:

(1). States, with attributes of sovereignty.

(2). Territories, subject to congressional control, but protected by the Constitution.

(3). Incorporated territory enjoying Constitutional rights but possibly not to the same extent as the Territories.

(4). Mere possessions, dependencies, unincorporated territory that may be governed without reference to Constitutional limitations.

Whether the fathers and founders contemplated so picturesque and embarrassing a heterogeneity will long remain, theoretically, an open question.

Venezuela and Santo Domingo Postponed Difficulties

We set forth in the last issue the "affairs" that have arisen between the United States on the one hand and Venezuela and Santo Domingo, respectively, on the other. There have been interesting developments in each of these cases, but they have not advanced matters much. The difficulties are merely postponed.

With reference to the Venezuelan complication, we are told by Washington correspondents reflecting official views that for the present the incident is closed. It seems that Minister Bowen, under instructions from the Department of State, presented what the correspondents call an "ultimatum" to President Castro of Venezuela. The ultimatum demanded the submission to arbitration of the two "American" controversies with him—that

of the Asphalt Company and that of the Orinoco Steamship Company. The case of the former, whose franchises the Venezuelan government is seeking to annul (on grounds already set forth in these columns), is still before the Venezuelan courts. The case of the latter company has already been passed upon by an arbitral tribunal, and Venezuela is complying with the award rendered.

President Castro, it is admitted in semi-official statements, was not particularly impressed by the so-called ultimatum. His reply was more vigorous and valid than conciliatory. He demanded to know whether the United States assumed to impeach the integrity of the Venezuelan courts and imply that no just decision could be expected from them. It is hardly necessary to say that no power in civilization capable of defending its rights and sovereignty would have returned a different answer. President Castro was on safe and firm ground.

His reply, as well as the statement apropos of the second case that he could not consent to arbitrate it a second time, because such a course was contrary to the original agreement and would offend the arbitrator, a prominent European scholar and jurist, "closed the incident" for the



SETTING OUT TROUBLES FOR HIMSELF
The Powers—He will grow switches for his
own punishment out of that tree.

—From the Minneapolis Journal.

time being. The "ultimatum" failed of effect, and it is for our government to determine how far it will go in this matter in which, as leading papers say, the American people have shown no interest whatever.

With reference to the Santo Domingo affair, the failure of the Senate to ratify the treaty giving us, practically, financial control and "moral suzerainty" over the kingdom disappointed not only our State Department and the President, but the Morales government of Santo Domingo as well. Pressure on the part of European creditors and their respective governments was apprehended, though this was an improbable contingency. Disorder and insurrection in Santo Domingo herself was more likely, as President Morales is unpopular and without just title to his office.

Our minister to Santo Domingo suggested a *modus vivendi* to preserve the status quo and prevent internal disturbances and foreign demonstration, and President Roosevelt promptly accepted the arrangement, which seems to be entirely acceptable to Morales and his faction. It is apparently simple and unobjectionable, but certain senators and editorial commentators see possibilities of mischief and evil in it. Americans, designated in the first place by the President of the United States, are made collectors of Dominican customs and, after handing over forty-five per cent of this revenue to the Morales government for its maintenance and support, deposit the balance in a New York bank for the benefit of the foreign creditors of Santo Domingo. If the Senate ratifies the shelved treaty, the money thus accumulated will be distributed equitably among these creditors; if the treaty shall finally be rejected, the money will be returned to the Morales government and the last state of the creditors will be no worse than the first. They will have lost nothing except a little time.

Those who object to this arrangement do so on these grounds: That the Presi-

dent had no right to conclude such an agreement with a foreign government; that in the event of an insurrection against Morales it might become necessary to send ships and marines to Dominican ports to protect our fiscal agents and prevent interference with the discharge of their duties—a course which, in turn, might lead to war with Dominican revolutionists. Of course, the President has no power to make war, but it is feared that his action may result in a certain situation being created in Santo Domingo which will either embroil us with the people of that perpetually disturbed country or else deprive our Senate of its rightful freedom of action and force it to ratify the treaty in spite of the strongest considerations against such ratification.



THE LATE GENERAL
FITZHUGH LEE

Germany, France and Moroccan Question

The political and diplomatic circles of Europe have been agitated and bewildered over a new international complication. We refer to the Moroccan "coup" of the German Emperor. His visit to Tangier, his speech to the German colonists and traders there (a mere handful) and the "explanations" of Chancellor von Bülow in the Reichstag have conspired to create a situation full of menace and possibilities of discord.

The Moroccan question, strictly speaking, concerns only the Mediterranean powers. Germany has not been supposed to "claim" anything in Morocco, and when, early in 1904, the Anglo-French treaty was signed and the claim of France

Highways and Byways

to a "paramount" position or role in the Moorish kingdom was recognized and confirmed (France making reciprocal concessions to England in Egypt and else-



MULAI ABDUL AZIZ
SULTAN OF MO-
ROCCO

where), Germany was not directly consulted regarding the adjustment. In October, 1904, France concluded a convention with Spain whereby the principles of the treaty with England as affecting Morocco were indorsed and accepted by the Madrid government. France thus secured the privilege of "advising" and "assisting" the sul-

tan of Morocco, who is nominally a sovereign ruler, in the maintenance of order and the financial rehabilitation of his country.

It is true that France is generally believed to contemplate the "absorption" of Morocco, but for the present her policy is one of "pacific penetration." As the ruler and owner of Algeria, France says that the disturbed condition of Morocco, the constant danger of civil war and anarchy, give her the right to press reforms upon the sultan. And this right, we repeat, seems to have been recognized by the great powers of Europe—with the exception of Germany.

The speech of Emperor William at Tangier was at first characterized as an indiscretion. It was, in fact, the result of careful consideration and was intended to serve an important purpose. The Emperor significantly and pointedly dwelt on the independence of Morocco, on the necessity of maintaining the open-door principle in the kingdom and on the determination of Germany to uphold the sovereign rights of the sultan. The speech

was well described as "an immense political demonstration." It challenged French claims in a bold way. It served notice on Europe that Germany no longer feared the dual alliance, owing to Russia's weakness and preoccupation in the Far East, and that she must be reckoned with as a great naval and colonial power.

While the speech startled and annoyed France, she remained cool and self-possessed. M. Delcassé, her foreign minister, pointed out that the French policy in Morocco aimed neither at monopoly nor at territorial encroachment, and that the Kaiser's words, consequently, had no practical importance. He announced that no change of any kind would be considered in the premises.

Germany can take no further steps. It is reported that she suggested to the powers an international conference to define the status of Morocco and that none of them responded favorably. England, Russia (the ally of France), and Spain would not participate in such a conference, and the scheme was foredoomed. Nevertheless, if all Germany seeks is some concession, some "compensation," in another part of the world, as the price of her recognition of French predominance in Morocco, the Republic may meet her half way to avoid more serious misunder-



IN A "GERMAN GARDEN"

—From the New York World.

standing. Negotiations are already believed to be in progress looking to an amicable adjustment. Neither power is desirous of a crisis, still less of conflict.

Isthmian Problems and the New Commission

The complete reorganization of the isthmian canal commission should insure more efficient prosecution of the great enterprise and a more rapid rate of progress. Congress, owing to a difference between the House and the Senate over proposed measures legislating the commission out of existence and giving the President plenary power to direct the canal work and govern the "zone," failed to enact any canal bill. There is now no express legislation for the government of the zone, while the construction of the waterway is controlled by the faulty and antiquated "Spooner" act which was passed before the Panama Republic was formed and the present route selected.

While the Spooner act vests considerable power and discretion in the President with reference to construction work, it provides for a commission of seven members. It is generally believed that a commission of three would discharge the duties involved far better. At any rate, the old commission, though composed of able and eminent men, disappointed the President, and he decided to retire it.

The new commission will work under a new plan. Three of the members will form a sort of directorate, each having his special sphere of activity. Mr. Shonts, a railway man, will be the president and fiscal head; Mr. Wallace, chief engineer, will have charge of the construction work, and Mr. Magoon, legal expert, will govern the zone and direct the administration of the laws therein. The other members, distinguished engineers, will execute duties assigned to them by the President.

There is to be created an advisory board of engineers to study the difficult

technical questions presented and render assistance to the commission. Three eminent foreign engineers—a German, an Englishman and a Frenchman—will have places on the board.

The chief question to be decided is whether the canal is to be one with locks or sea-level with one tide lock. Mr. Wallace favors a sea-level canal, but he realizes that a thorough preliminary inquiry is necessary. There are other problems of a similar nature demanding experience, skill and knowledge. For a year or two work



THEODORE P. SHONTS
Chairman of the
Panama Canal
Commission.

can go on without reference to the ultimate solution of the "level" question.

The sanitary arrangements in the zone have been severely criticised by physicians who have visited the isthmus, but the administration assures us that in this direction excellent work has been done. The death rate has been materially reduced, and the health of the laborers and employees has been reasonably good. There is need of several thousand additional "diggers," and the employment of Japanese and Chinese is favored by the commission.

New Political Tendencies and Corporate Alarm

The Chicago election, the issues of which we set forth in a previous issue, has, not unnaturally challenged national attention. Radicals assert that it sounded the knell of private ownership and management of public utilities. There is not, they say, a city in the United States, which would not, if afforded the chance, vote as Chicago did—for the municipal-

ization of street railways, gas and electric lighting, etc. Washington correspondents, without necessarily concurring in this belief, predict that municipal, state and



THE LATE JOSEPH
JEFFERSON

national ownership of public utilities will be a great political issue three years hence. To this forecast, indeed, color is lent by the spirit and tone of the addresses delivered at the Chicago Jefferson anniversary celebration. Mayor Dunne, Mayor Johnson of Cleveland and Mr. Bryan were the chief speakers, and they not only demanded

aggressive radicalism from the Democratic party (in striking contrast with eastern appeals for "safe and sane" conservatism in politics), but specifically indorsed government ownership of railroads, etc., as the cardinal plank of the next platform of the national Democracy.

These signs and symptoms have alarmed conservative organs and circles. Articles and interviews on the dangers of municipal ownership and national ownership are appearing in the press, and the people are warned that the "new policy" means bureaucratic despotism, spoils, waste and inefficiency.

Can the tendency in question be checked? it is asked. What is the alternative? Of course, not conversion to theoretical socialism is responsible for the popular revolt against private ownership in the public utility field. It is the abuses and oppressive and reckless practises of the corporations enjoying special privileges that have exhausted the public patience and produced the explosion. Inflation, extortion, "high finance," corruption of public bodies through crude or

subtle forms of bribery, lobbying—these are the factors in the process. The public will no longer be robbed and deceived and mocked. If the private corporations will not give it decent treatment, the ballot will be used to oust them from the field of quasi-monopoly and put public representatives in control. Realizing this, fair-minded organs of moderate opinion are addressing impressive appeals to the enfranchised corporations. In the name not only of justice and patriotism, but of enlightened self-interest as well, they urge consideration for the public and reasonable behavior generally. At the same time the need of more effective and stringent control of public service companies is admitted by these organs. Such control, they aver, is possible, and to this remedy rather than to "socialism" on any scale popular opinion should be directed.

Here is a typical utterance, taken from an editorial in the *New York Journal of Commerce*:

It is these abuses of public utility corporations that have made their service so costly that it can be claimed that it may be provided at less cost by public authority in spite of the lack of incentive for efficiency and economy and the inducement it will afford for extravagance and inefficiency. It is this that is impelling to rash experiments in public ownership in lines in which it is opposed to sound principles and right reasoning. The evil has grown out of the failure of public intelligence and moral sense to insist upon and enforce through legislation and the administration of law a proper regulation and control of public service corporations. A similar failure in these civic forces will make of public ownership a greater evil, and bring still greater scandal and reproach upon our government methods. If these forces can be aroused to exert their proper influence in the management of public interests, they should be guided to a corrective of the evils, bringing the corporations into subjection and making them conform to just and reasonable requirements. The real issue should not be accepted as lying between the principle of municipal ownership and that of private enterprise and management, measured by the actual results of the former, but be-

tween the properly regulated and controlled exercise of franchise privileges and a public service subject to all the malign influences of city politics. The contest against the abuses of these privileged monopolies is taking a perilous direction, when it should be aimed at the correction of the abuses and the subjection of the corporations to the needed control.

The radicals meet such observations by saying that the "regulation" alternative has failed and must fail; that corporations will always abuse the power of special privilege; that whatever is natural monopoly is public, not private, business, and that there is no reason why public bodies should abdicate in favor of corporations. Monopoly is never efficient, and public management, they contend, at its worst, will be better than private monopoly; and if the people are to exercise control, they had better control their own servants than private corporations *through* their servants. Impartial observers must admit that the radicals are in the ascendant today in both political parties.

Labor Legislation and Personal Rights

Acts regulating industrial relations and restricting the hours of labor have again and again been annulled, on constitutional grounds, by the courts, state and federal. It may be said, in a general way, that the tendency of our courts is still strongly "individualistic," and that the presumption with them is that so-called labor legislation is paternalistic, improper and un-American.

In spite of this, however, great surprise, not to say apprehension and displeasure, was excited among workingmen and social reformers by the decision of the United States Supreme Court, rendered a few weeks ago, in the case of a New York citizen, a baker, who had been fined for violation of the state law prohibiting the employment of persons for more than sixty hours a week, or ten hours a day, in any bakery or confec-

tionery establishment, even with the employees' consent.

This act was stubbornly contested in the state courts, but the Court of Appeals upheld it as a proper and valid exercise by the legislature of the police power. The right of free contract and the rights of property and personal liberty are, of course, not absolute. It is well known that they may be interfered with and restricted in the interest of public health, order or morals. Restriction of female and child labor is based

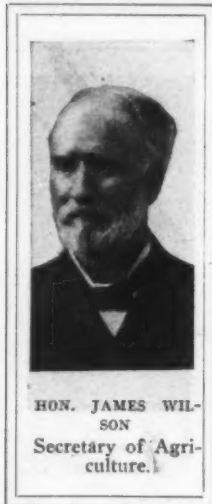


CHARLES E.
MAGOON
Governor of the
Canal Zone.

on the doctrine of the police power of the states. So are anti-usury laws, vaccination laws, and others "too numerous to mention." Some years ago the Supreme Court sustained what was regarded even by reformers as a radical act, a new departure in American legislation—the Utah law prescribing eight hours for adult employees (even males) in mining and smelter establishments. It held that even if men were willing to work longer hours, the state had the authority to restrain and prevent them in the interest of society, of posterity, because in mines and smelters a longer working day than eight hours could not fail to injure the employees' health and shorten their lives.

In the New York case, however, the same court (four justices dissenting) was unable to discover a reason for viewing the act regarding bakeries as an exercise of the police power. Disregarding the decision of the highest court of the state, the court said (Justice Peckham, a Democrat, reading the prevailing opinion he had prepared):

"The question whether this act is valid as a labor law pure and simple may," he said, "be dismissed in a few words. There is no reasonable ground for interfering with the liberty of persons or the right of free contract by determining the hours of labor in the occupation of a baker. Bakers are in no sense wards of the state. Viewed in the light of a purely labor law, with no reference whatever to the question of health, we think that a law like the one before us involves neither the safety, the morals, nor the welfare of the public, and that the interest of the public is not in the slightest degree affected by such an act.



HON. JAMES WILSON
Secretary of Agriculture.

terest of the public is not in the slightest degree affected by such an act.

"It seems to us that the real object and purpose was simply to regulate the hours of labor between the master and his employees, all being men *sui juris*, in a private business, not dangerous in any degree to morals or in any real and substantial degree to the health of the employees. Under such circumstances the freedom of master and employee to contract with each other in relation to their employment and in defining the same cannot be prohibited or interfered with without violating the federal constitution."

Justices Harlan, Holmes, White and Day expressed the opinion that the case fell within the class covered by the police power. The first-named justice stated that there was ample reason for the view that more than ten hours' steady work in a bakery might endanger the health and shorten life. Moreover, there was, in his judgment another reason for sustaining the statute—namely that the New York courts had done so. In his own words:

"Let the state alone in the management of its purely domestic affairs, so long as it does not appear beyond all question that it has violated the federal constitution. This view necessarily results from the principle

that the health and safety of the people of a state are primarily for the state to guard and protect, and is not a matter ordinarily of concern to the national government."

Three of the dissenting justices are Republicans, yet it is from them that this recognition of "State rights" comes, while the Democratic justices (excepting Justice White) disregarded that doctrine and sanction a reversal of the highest court of a state, in a case involving construction of a statute law and the application of the police power, by the federal Supreme Court. These facts are significant of changes in political and legal opinion.



Insurance Scandals and the Lesson

When, in December last, Commissioner Garfield (and, in a few lines, President Roosevelt) advocated federal control and supervision of the great insurance companies, whose business is national and even international, the suggestions were treated as purely academic even by those who approved them. The upheaval in the great Equitable company has made the question decidedly practical.

As that company is now being investigated by two independent agencies—the state superintendent of insurance and a directors' committee—it would be unfair to accept any of the current charges as established. But the mutual recriminations and "exposures" of the Hyde and Alexander factions admittedly contain considerable truth. The directors, under pressure of public opinion and newspaper criticism, have voted to "mutualize" the society gradually—that is, to give the policy-holders power to elect a majority of the directors; but the right to do this is being challenged in the courts. At present those who own or "control" the company's capital stock (about \$100,000, all the property of the Hyde family) elect the directors; and it is charged, among other things, that several of the so-called directors are mere "dummies," men who directors are mere "dummies," who own no stock and have no will or responsibility.

Of the other charges bandied by the opposing factions are these: misuse of the funds of the company in the name of "advertising" its affairs; illicit profits realized through the sale of securities to the company by directors; wholesale nepotism; mismanagement and the payment of extravagant salaries, and so on. The exact truth may or may not be determined in the proceedings now pending; certain it is that the policy holders and the public will not permit a "whitewashing" and a suppression of the scandal. They will insist on a thorough inquiry, on the rectification of whatever may be wrong and unsound in the management of the company, and on a judicial determination of the status of the \$100,000,000 "surplus," a fund accumulated in the course of years and supposed to be held in the interest of the present and future policy holders. Does any part of this fund belong to the stockholders. Can they wind up the affairs of the corporation, transfer the policies to other companies and appropriate the surplus? The right to do this has been asserted by the Hyde faction and stoutly denied by policy holders.

Be this as it may, the Equitable situation

illustrates the need of more stringent regulation of insurance. "Mutualization" is generally recognized as desirable, but it might prove wholly inadequate. Policy holders vote for directors by proxy, and this, obviously, is a poor form of control. Their interests must be thoroughly protected, and either the states or the federal government will be compelled to undertake this responsibility, this function.

The demand for stricter and more efficient official supervision and regulation is merely an aspect of the general movement for real control of powerful combinations, companies and public service corporations. The exploits of "high finance"—the use of public savings and funds by trustees to enrich themselves and their friends at the expense of the same public—have aroused the people quite as much as the abuses of the beneficiaries of special franchise—owners of public utilities managed purely for private profit, without decent regard for the rights and interests of the people who confer these franchises.

Before Congress adjourned, a senator introduced a bill for federal incorporation and supervision of insurance companies. He did this for "educational purposes." Recent developments have done more to educate the average man than a thousand such bills could have done.



GIFFORD PINCHOT
Forester, U. S.
Dept. of Agriculture.



RIVAL CANDIDATES

How would this be for a presidential campaign?

—From the Minneapolis Journal.

The Revival Winter of 1904-05

Wales has been for the last eight months in the grip of a religious revival of the sort which had come to be alluded to as "old fashioned." The central figure is a miner's son, Evan Roberts, a simple

mindful, zealous, young preacher. But preaching has been subordinated to song, prayer and "testimony." Town and country populations have been equally moved, and between 75,000 and 100,000 "conversions" are reported. The phenomena of



a wide spread spiritual awakening had become so rare that ministers and secular journalists went to Wales from all parts of Great Britain and even from America to observe them. While this spontaneous outburst of religious interest was taking place in rural Wales carefully organized evangelistic campaigns were being carried on in England and America. In Liverpool, London, and other English cities Dr. R. R. Torrey of Chicago with a singing evangelist has preached the "old fashioned gospel" to throngs which taxed the capacity of the largest auditoriums. These meetings courted publicity in every way known to the press agent, and were supported by a large guaranty fund.

In America the Presbyterians, Congregationalists, and Methodist Episcopalians have taken up in earnest the problem of awakening the masses to their need of personal religion. The Presbyterian General Assembly through its Evangelistic committee has inaugurated a series of union revival efforts in many large cities of the West. The Rev. J. Wilbur Chapman has been the leader and he has organized a corps of evangelistic preachers and singers, who settle down upon a city and uniting all the denominations "push things" with the energy and skill of an Oyama. Thus Kansas City, Omaha, Denver, Los Angeles, Portland (Ore.), and

other cities have had the gospel message pressed to their attention with ability and strategy. The Commission on Aggressive Evangelism which was instituted by the Methodist Episcopal General Conference in 1904 has kept the subject before the churches by correspondence and through the church press. The reports from the Methodist churches indicate that revival efforts have been more numerous and more fruitful this winter than for many years past.

At the Congregational National Council in Des Moines last fall the Rev. William J. Dawson of London, formerly a Wesleyan but now a Congregationalist, produced a great impression by an address in which he called upon the churches represented there to apply themselves to evangelistic work. He has resigned his pastorate and for several months past has been conducting evangelistic services in several eastern cities, Portland (Me.), Boston, Brooklyn, New York, etc. He differs from the evangelists heretofore mentioned not in zeal or method but in doctrine. He is professedly of the new school. Accepting without controversy the new view of the Bible and the more liberal interpretation of theology, he pleads none the less earnestly for the acceptance of Christ as the personal savior of the individual.

The general opinion of those who have given attention to the religious condition of Protestant Christendom seems to be that the times are ripe for spiritual refreshment. The world's attention has been engrossed for half a century with the discoveries of science, the conquest of the material world, and the exploitation of its resources. Even in religion there has been greater enthusiasm for the study of biblical criticism and biblical archaeology than for the preaching of the Gospel. The manifold outcroppings of the new desire for personal salvation within the past year have stimulated religious efforts and strengthened the hope that Christendom is on the brink of a new age of faith.

"Tainted" Money and the Churches

Much good should result from the extraordinary controversy in the Congregational Church—and in other denominations and circles—over the acceptance by the board of foreign missions of a \$100,000 gift from Mr. John D. Rockefeller, head of the Standard Oil Company. There is, plainly, room for honest differences of opinion upon the question, since able and earnest men do differ, and widely, as a matter of fact; but, as the old saying has it, to present a problem accurately is half to solve it.

The original question, as put by Dr. Washington Gladden and others, is simple: Was it right for the board to solicit, or accept, Mr. Rockefeller's money? But this question leads to several others.

The argument against acceptance is this: The Standard Oil Company is notoriously a grasping, merciless, soulless monopoly. It has suppressed scores of competitors through the employment of methods that, whether legal or not, are un-Christian, immoral and dangerous. It has been accused, moreover, of persistent and constant violation of the law, especially in connection with the outrageous rebate practise and railroad discrimination. While Mr. Rockefeller himself has never been convicted of wrong doing, the monopoly whose head he is, is regarded as a notorious and contumacious law breaker. Can any church, the exponent and defender of moral law, accept favors from such a source without stultifying and dishonoring itself? Would not such acceptance imply approval or at least condonation of reprehensible and immoral practises?

Not at all, answer the spokesmen of the other side. The church condemns practises, but it cannot and does not condemn men whom it does not know, of its own knowledge, to be guilty of censurable and pernicious practises. It has no right, any more than the law has, to brand and condemn any man without trial and inquiry,

on hearsay evidence and current gossip. No one has preferred charges against Mr. Rockefeller to the proper authorities of the church to which he belongs; he has not been expelled or convicted; his standing as a church member is good—as good as his legal standing; how, then, and on what grounds can a body of church trustees refuse his money? Furthermore, the money is to be devoted to religious and moral purposes; is it not the duty of the trustees to think of the purpose rather than of the possible origin of any special sum offered them?

Neither argument is conclusive; neither position is free from great difficulties. It is clear that the logic of the argument for acceptance would lead to absurd conclusions. Suppose notorious, but unconvicted, gamblers, keepers of vicious resorts, receivers of stolen goods, embezzlers, wreckers and so on should offer contributions to any religious body; could it afford to accept them? If not, where is the line to be drawn? The church, then, cannot adopt the narrow and inferior standards of the law; it is bound to be more exacting, more scrupulous, more critical and inquisitive. On the other hand, if Mr. Rockefeller's money is to be refused because of the known and suspected methods of the Standard Oil Company, what of the money of other trusts, monopolies, "high finance" gentry? What is to be the test, the rule, whereby to determine whether money is tainted or not, and how deep and serious the taint is in any case?

The discussion will stimulate thought and the use of the moral sense, but no immediate agreement is likely.



EVAN ROBERTS
Leader of the
Welsh revival.

Anti-Peonage Law Upheld

A judgment of Judge Swayne in a flagrant case of peonage was set aside by the federal Supreme Court in a recent decision on purely technical grounds, a new trial being ordered. But the decision is extremely important because it fully sustains the anti-peonage acts passed by Congress nearly thirty-five and forty years ago—acts which many have believed to be unconstitutional, or, if constitutional, inadequate.

The anti-peonage law is based on the Thirteenth Amendment to the Constitution. It prohibits peonage in the states and territories and prescribes a fine and imprisonment for holding, arresting, or returning any person to a state of peonage. In the case in question it was contended that the law applied to states, but not to individual citizens, and to other kinds of involuntary servitude than that arising out of debts properly contracted.

The Supreme Court held that peonage was a status or condition of compulsory service based upon the indebtedness of one man to another. The mode of its origin was not essential; whether authorized by state law or not, peonage was

compulsory service and as such prohibited by federal law in accordance with the Constitution. What the law intended to abolish and prevent was compulsory service to secure the payment of any debt. There is a clear distinction between peonage in this sense and the voluntary performance of labor or service in payment of a debt. In the latter category of cases the debtor could break his contract, no law compelling him to perform it; he was merely subject, in such an event, to an action for damages. To this rule there are some well established exceptions, but it is a rule nevertheless. The peon is not permitted to break his contract, he is forced to work off his debt, and this condition the law prohibits.

In the case at bar two negroes who had fled to Florida while owing debts to Georgia lumbermen, had been arrested on trumped-up charges of larceny and brought back to Georgia for the purpose of working off their debts. The evidence showed that they had been subjected to cruel and barbarous treatment and held in a state of peonage. It appears that fifty prosecutions at least depended upon the outcome of this test case, peonage having been practised quite extensively in several southern states. The decision should put a stop to the inhuman and discreditable practise. It doubtless will, the court having given the law a broad construction and thereby having made it effective.



NIAGARA FALLS—AS THE NEW YORK LEGISLATURE WOULD HAVE THEM?

—From the Chicago Record-Herald.

What the Paragaphers Say

ENVOI TO THE PRESIDENT—

Going back to Washington,
Going where the bears are tame,
But it's whispered on the quiet
He is after larger game.

—Chicago News.

IN CHICAGO—"Ye're a scab."

"Oi'm not."

"Didn't yez take me place?"

"Yis; but Oi belongs to de strikebreakers' union."—Louisville Courier-Journal.

Kaiser Wilhelm is able to see several points of resemblance between Japan and the late Mr. Attila, the notorious Hun, who also was something of a Peril in his day.

The Story of a Tree as Told by Its Log

By Professor Charles F. Millspaugh

Curator of Botany, Field Columbian Museum.

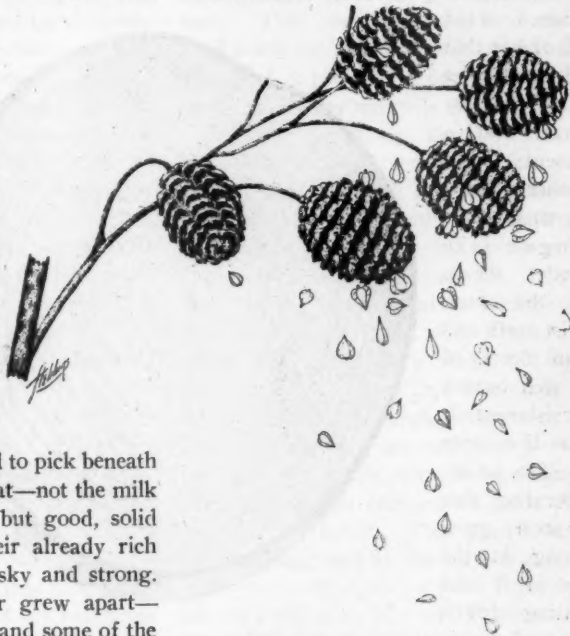
The annual rings of a tree reveal not only the number of years it has existed; but also, by their lesser or greater widths, various other facts and factors of interest. So fully do these rings record the life of the tree, and the influences that have worked for or against its growth, that they may be considered to be a graphic autobiography.

MY parents' name was Alder—Saw-tooth Alder if you please, because the edges of our leafy lungs are cut into many sharp little teeth. Mind you we did not call ourselves that, our language is too soft and sighing in its tones for such a name. It was given us by the destructive animal called white-man, who came into our country long after our friends and companions the red-men ceased to live under our sheltering branches; they had named us "Q'al" which I think is much prettier. We grew far north on a beautiful, green island called Queen Charlotte, where our Indian companions lived on fish and berries: luscious strawberries, gooseberries

and shalons, that they used to pick beneath our shade and mix with fat—not the milk fat that you call cream, but good, solid seal fat that warmed their already rich blood and made them husky and strong.

My father and mother grew apart—not gradually as I understand some of the white children's parents sometimes do, but always, for we know that crowding warps us and makes us gnarly and ugly. Every spring, when the cold, dark days of sleeptime were past and the sun sent the life blood rushing up from his warming feet to the very tips of his extended fingers, my father would put out his hundreds of silken flowers and send to mother's waiting lips by each gentle breeze his message of love, which she joyfully wafted back with a thankful rustle of her soft new leaves.

We were a large family, each year thousands of us children were sent abroad to shift for ourselves. We were delicate little things then, seeds with gossamer wings, and mother nurtured us fondly in strong little cone-like swinging cradles until we were old enough to fly. Then



on a dry autumnal day when the wind was high she would spread her arms, give us her last blessing, and shake us loose on the breeze. Those of us who were too timid to fly far enough, and those who unfortunately fell upon the rocks, died of starvation; those who were too adventurous and flew far out into the lake, or farther still to the great ocean beyond, struggled a while, then drowned; those who attracted the sharp eyes of the little birds, who always enjoy our tender flesh, were quickly devoured; while even

many of us who managed to alight in a pretty good bit of soil somehow failed to get started right and also perished; so each year but few of the large family really managed to get a sufficient start in the world to amount to much. I was one of the lucky ones and dropped in a nice, soft, damp spot between three little pebbles where the birds could not find me; then too the snow soon came, and buried me so deep that I fell into a slumber that lasted all winter. When the good old sun, our comforter and life giver, warmed the dewy air of spring, I felt so softened and full of life that I burst the seams of my winter coat, a present from mother, thrust my tender little tongue-like rootlet deep into the sweet, moist earth and drank deeply of its rich humus nourishment. It was like your bouillon, so invigorating that I soon grew strong in the joy of it and putting forth

two tender leaves I took in my first sweet breath of the glorious air. As these lungs grew strong I felt so brave and happy that within a month I ventured another pair, then settled down to a thankful life shaded from the too ardent sun by the friendly little pebbles that surrounded me.

As the autumn days grew on, that first year, I felt a peculiar contracting sensation in all my veins; my heart impulses gradually became less as the days grew chill until I fell into a troubled sleep, restless and full of frightful dreams. I thought that my lungs dried up and blew away; that my skin was very cold and

crackly all over; and that I was withal so parched and thirsty! Then I felt a comforting warmth that reminded me of the kind snow that covered me the year before and my sleep fell peaceful and dreamless as if I were dead. I awoke with a start, I don't know how long after; funny little itching swellings came out in several places along my slender body, and at its very tip, that made me uneasy. As my pulses began to stir, and my veins to expand and fill, these swellings pained me with their oppressive throbbing; this grew rapidly worse until finally, one

warm, moist day when I felt nearly suffocated, they all burst open and I breathed again. Then I began my diary—Oh yes we do, all trees keep a diary—and some day when you become sufficiently learned you will be able to read the neatly inscribed pages where we keep a faithful account of the



years of strengthening rain; the severity of the cold seasons; the years when the sun was at his best; the dry seasons when we were kept on awfully short rations; and many other things, good and bad, that we forget so soon when the joy or sadness of the present is upon us.

Happy as I was in this new life yet I had my troubles that year. The three pebbles seemed very close together now and pressed so hard that they made my sides ache. They cramped me and, as you may see recorded in the very center of my diary, they even made me angular

and ugly in shape. As I grew more robust I finally conquered them, pushed them aside and was free, but it took me another whole year to get rid of the disfigurement and grow round and smooth as good alders always do.

Each year up to my ninth I grew rapidly and became strong in my body which proved very necessary, for I had many limbs to put forth that I might have fuller lung expanse and a fitting circulation for one so healthy and vigorous. Just look at my diary and see what fine rings I made, increasing my girth full three-quarters of one of your inches every year—and *our* years for growth are only four months long on Queen Charlotte; the balance of your year we spend in restful, dreamless sleep. When I was nine years old I fell in love with a beautiful cousin of mine who grew so close, just east of me, that that year our trunks touched. So ardently did we lean toward each other that you will see I became considerably flattened on that side. So did she, the attachment was mutual. I became so engrossed in this love affair that I nearly lost my appetite, just as you white men do under the same circumstances, and though the end of summer found me anxious for the wedding I was considerably impoverished, through my devotion, and dwarfed in my resources. You older folks will understand my condition I'm sure. Our marriage took place, a quiet event which few of my neighbors seemed to notice, and the next year we raised our first family. This so sapped my strength that I hardly grew a quarter so much as in my carefree years; the smaller ring in my diary plainly shows the effect that my inexperience and the added responsibilities of a large family had upon my growth. It took me three years to become accustomed to caring and providing nourishment for a yearly increase of hungry and clamoring children before I succeeded in returning to my former vigor and tone.

Then another trouble befell me. One

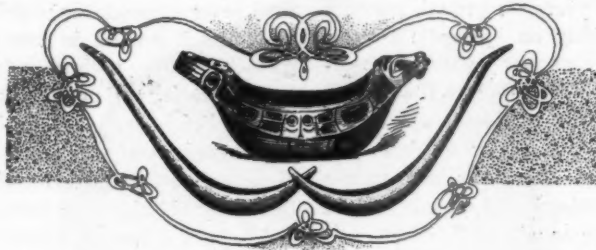
of my red friends while hunting a caribou, that came over the ice that year, succeeded only in wounding the great beast, which, turning upon him before he could escape, quickly killed him with its great horns. His friends finding him near my feet built a high scaffold under my branches and laid his body and all his belongings upon it. In doing this they so deeply drove a heavy support near my trunk that I could not push it away, and this not only cramped and galled me but it made an ugly depression in my side almost opposite the loving impression of my mate. This continued until my death, for I never succeeded in pushing the stake aside and it proved, in part at least, responsible for my untimely end.

By glancing at my diary, which is placed before you oriented like your school maps, you will see how these depressions affected my otherwise true outline; you will also note that on the north and west I increased much less in bulk than on the south: that is because the warm sun expanded my veins much more where his genial beams shone full upon me most of the day. This fact made my family and all the neighboring trees excellent guides for our red friends who, on their long hunts, consulted us instead of your magnetic compass to guide them through the forest. They always knew by our shape and by the moss that grew upon our north sides (a great comfort in winter I tell you) just which direction to take to find their way back home. If I had lived to a fair old age as I gave promise of doing you would have found my bark much thicker on the north side where I most needed its protection, and my diary would have had many more stories and facts to give you.

In the autumn of my twentieth year a white man, called a professor, a man unusually harmless by nature, came, guided by a red man, to look at the scaffold grave at my side. While this professor, an ethnologist I think you call him, was gloating over the things that had been

buried with the body of the red hunter, his companion called his attention to me by placing a warm hand affectionately upon my smooth bark and saying: "This is the kind of wood from which we make the bowls and spoons with which we eat polmuk and tsilwit." "Ah," said the professor, "that is very interesting. I do not know much about trees so I will cut it down and take a section of it to my friend the botanist, then I shall know how to properly label the utensils I have secured." I hated his hard, dry words, even though I did not know their mean-

ing, until he took from his belt a sharp, shining thing, and struck me an awful blow that nearly cut me through, making me tremble to my very top and so weak that I but little felt the other hurts; then with a fearful shock the longest sleep of all came upon me. . . . All that is left of the Alder tree is a small section of its trunk now placed in a museum with some wooden bowls and spoons of the Haida. From this the page of its diary was taken, a page that tells, by its beautifully regular rings, the story of its shortened but eventful life.



Legends of the Trees

By Vincent Van Marter Beede

There grew a goodly tree him faire beside,
 Laden with fruit and apples/rosy redd,
 As they in pure vermillion had beene dide,
 Whereof great vertues over-all were redd:
 For happy life to all which thereon fedd,
 And life eke everlasting did befall:
 Great God it planted in that blessed stedd
 With His Almighty hand, and did it call
 The Tree of Life, the crime of our first
 Father's fall."

—Spenser, "The Faerie Queene." Bk. I Canto xi.

THE Buddhist of India tells us that the fig, or peepul, is the supreme Tree of Life; and this plant is more venerated than any other that springs from the ground. Gautama, the great Burmese deity, slept under the fig tree and dreamed that the Earth was his bed, and the Himalayas were his pillow; that his left arm extended to the Eastern Ocean, his right arm to the Western Ocean, and his feet to the Great South Sea; and that ultimately he would become a Buddha (Wise One). When the

prophecy was fulfilled, Gautama was seated once more beneath this same tree. Vishnu, the Preserver—who with Brahma and Siva compose the Divine Triad of Hinduism—Vishnu, according to some accounts, was born under the peepul tree Rarvasit, signifying Knowledge and Wisdom. The Indian fig tree is lofty, evergreen, April-flowering, with an acrid milk that contains India rubber. The long, heart-shaped, vibrating leaves are not unlike those of the poplar. In 250 B. C. a branch of the wondrous dream-tree of Gautama was sent to Amuradhapoor, the sacred city of Ceylon, in company with the good man's collar-bone, begging-dish, and other relics. When the new tree had risen it was named the Holy Bo, and today, so far as we can learn, the "great, famous, and triumphant fig tree," shrine of ceaseless pilgrims, watcher of ruins

such as Kipling describes in "The King's Ankus," is "perhaps the oldest and most venerated idol in the world."

Tsong Kaba, founder of the Yellow Cap Lamas, became a Buddha so late as the fifteenth century. Born an albino, he was not shaved until he was three years old. "From this hair there forthwith sprung a tree, the wood of which dispensed an exquisite perfume around, and each leaf of which bore, engraved on its surface, a character in the sacred language of Tibet." The Abbé Huc visited this very tree, which stands near the Buddhist convent of the Ten Thousand Images, and he bears testimony to beholding Tibetan characters on each leaf in light green and dark. Stranger still, he pried up the bark and was astonished by the sight of symbols germinating in the reddish, cinnamon-scented wood! The trunk, which three men could barely embrace, was eight feet high. In summer came the red blossoms. Thus far it has proved impossible to transplant cuttings. The Emperor Kwang-ho donated to the tree a silver dome and the support of three hundred lamas.

The ruined city of Padjajaran, on the island of Java, is visited by many pilgrims because of a sacred *Ficus* which one traveler has called "the Vegetable Giant." The Mahomedan priests exhibit the footprint in stone of some Titanic island hero who walked in the neighborhood of the tree, which in reality is two trees of the same genus, but of different species. The dual nature is curiously apparent in the differing shades of green in the leaves. The spirits of the dead are thought to hover in the branches. The celebrated botanist, C. L. Blume, was permitted to climb the venerated growth after incense had been burned at its foot. The capacious limbs were found to be a marvelous "garden in the air," the home of at least thirty-four species of plants, including the beautiful *Fagraea auriculata* of Thunberg.

The Tree of Life of the Northern mythologies is Yggdrasil, which almost every

authority terms an ash, although one writer speaks in favor of the *Robur Jovis* (Oak of Jupiter), and of that sacred oak of Geismar which St. Boniface cut down. Yggdrasil sprang from the body of the giant Ymir. The three roots of the honey-dripping ash extend, one to Asgard, the dwelling of the gods, another to Jotunheim, the giant world, a third to Niffleheim, where reign darkness and cold. Under the root of the Jotunheim is Ymir's Well of Wisdom. The spring of Niffleheim feeds the adder Nidhogge (Darkness), that gnaws forever at the Tree of Life. Four stags—the Winds—gambol eternally among the branches and crop the buds, and the nimble squirrel Ratatöskr carries endless strife from the eagle at the top to the serpent at the foot.

"The tree Yggdrasil
Bears a sorer burden
Than men imagine;
Above the stags bite it,
On its sides age rots it,
Nidhogge gnaws below."

—Eddas (Anderson).

The branches shelter the three sister Norns—Present, Past, and Future—in their home, Doomstead, where they sit spinning the events of man's life,

"By the Urdar forest dwelling,
Day by day from the rill,
The Nornas besprinkle
The ash Yggdrasil."

—Lord Lytton, "Harold," VII.

Stories of the ash, apart from those of Yggdrasil, differ extraordinarily in their praise and dispraise. Thus, "the Venus of the Forest" is the same wood of which Jove made the third, or brazen race of men, and Cupid his arrows before he fancied the more deadly cypress. Pliny wrote that if a serpent and a fire were both surrounded by twigs of ash, the serpent would rather die in the flames than attempt to pass the dreaded barrier. On the other hand, Discorides recommends mingled wine and the juice of ash-leaves as an antidote for snake-bite. In the Highlands, strength is imparted to a new-born babe by feeding it a spoonful of

ash-juice that has been procured from the end of a heated stick.

Perhaps the most powerful modern legend of the ash is to be found in George Macdonald's little-appreciated "Phantastes, a Faerie Romance for Men and Women."

When she shone out again, with a brilliancy increased by the contrast, I saw plainly on the path before me,—from around which at this spot the trees receded, leaving a small space of green sward,—the shadow of a large hand, with knotty joints and protuberances, here and there. Especially I remarked, even in the midst of my fear, the bulbous points of the fingers. I looked hurriedly all round, but could see nothing from which such a shadow should fall.

Still the shadow remained; not steady, but moving to and fro; and once I saw the fingers close, and grind themselves close, like the claws of a wild animal, as if in uncontrollable longing for some anticipated prey.

Good heavens! what did I see? I wonder that ever I arose, and that the very shadow of the hand did not hold me where I lay until fear had frozen my brain. I saw the strangest figure,—vague, shadowy, almost transparent in the central parts, and gradually deepening in substance toward the outside, until it ended in extremities capable of casting such a shadow as fell from the hand, through the awful fingers of which I now saw the moon. The hand was uplifted in the attitude of a paw about to strike its prey. But the face, which throbbed with fluctuating and pulsatory visibility,—not from changes in the light it reflected, but from changes in its own conditions of reflecting power, the alterations being from within, not from without,—it was horrible. It caused a new sensation; just as one cannot translate a horrible odor, or a ghastly pain, or a fearful sound, into words, so I cannot describe this new form of awful hideousness. . . . It reminded me of what I had heard of vampires; for the face resembled that of a corpse more than anything else I can think of; especially when I can conceive such a face in motion, but not suggesting any life as the source of motion. The features were rather handsome than otherwise, except the mouth, which had scarcely a curve in it. The lips were of equal thickness;

but the thickness was not at all remarkable, even although they looked slightly swollen. They seemed fixedly open, but were not wide apart. . . . But the most awful features of the face were the eyes. These were alive, yet not with life. They seemed lighted up with an infinite greed. A gnawing voracity, which devoured the devourer, seemed to be the indwelling and propelling power of the whole ghastly apparition. . . .

All I saw was the hand within three feet of my face. But, at the same moment, I felt two large, soft arms thrown around me from behind; and a voice, like a woman's, said, "Do not fear the goblin; he dares not hurt you now." With that the hand was suddenly withdrawn as from a fire, and disappeared in the darkness and rain. . . . I had let her talk on, for her voice was like a solution of all musical sounds. . . . As gently as I could, I cut with a knife a long tress of flowing, dark hair, she hanging her beautiful head over me. When I had finished, she shuddered and breathed deep, as one does when an acute pain, steadfastly endured without sign of suffering, is at length relaxed. She then took the hair and tied it around me, singing a strange, sweet song which I could not understand. . . . At last I had fallen asleep; for I knew nothing more that passed, till I found myself lying under a superb beech tree, in the clear light of the morning, just before sunrise. Around me was a girdle of fresh, beech leaves.

With the sun well risen, I rose, and put my arms as far as they would reach around the beech tree, and kissed it, and said good-by. A trembling went through the leaves; a few of the last drops of the night's rain fell from off them at my feet; and, as I walked slowly away, I seemed to hear in a whisper once more the words: "I may love him, I may love him; for he is a man, and I am only a beech tree."

The alder as described in "Phantastes," is, if anything, even more loathly than the ash:

The lady glided round by the wall from behind me, still keeping her face towards me, and seated herself in the farthest corner, with her back to the lamp, which she hid completely from my view. I then saw indeed a form of perfect loveliness before me. Almost it seemed as if the light of the rose lamp shone through her

(for it could not be reflected from her), such a delicate shade of pink seemed to shadow what in itself must be a marbly whiteness of hue. . . . I woke as a gray dawn stole into the cave. The damsel had disappeared; but, in the shrubbery at the mouth of the cave, stood a strange, horrible object. It looked like an open coffin set up on end, only that the part for the head and neck was defined from the shoulder part. In fact it was a rough representation of the human form, only hollow, as if made of decaying bark torn from a tree. It had arms, which were only slightly seamed, down from the shoulder blades to the elbow, as if the bark had healed again from the cut of a knife. But the arms moved, and the hands and fingers were tearing asunder a long, silky tress of hair. The thing turned round; it had for a face and front those of my enchantress, now of a pale greenish hue in the light of the morning, and with dead, lustreless eyes. . . . My beauty was the maid of the Alder! . . .

According to an Aryan tradition, the rowan, or mountain ash, is a protection against lightning and the darker powers; and this is the tree of Thor, the Thunder God of the North. Rowans are found in the vicinity of Druidic circles. At Strathspay, England, on May day, sheep are made to pass through hoops of rowan at morning and night in order that lambs and wool may prove abundant during the coming year. Such enemies are the mountain ash and the juniper that a tree standing between them will be cleft asunder; yet sailors have thought that both of these woods must be on the vessel if it is to be immune from going down to Davy Jones' Locker.

It is Tennyson's "Amphion" that invests the tree cult of old Greece with a delicate and lifelike humor:

"Whenever, in a lonely grove,
He set up his forlorn pipes,
The gouty oak began to move,
And flounder into hornpipes.
The mountain stirred its bushy crown,
And, as tradition teaches,
Young ashes pirouetted down,
Coquetting with young beeches,
And briony vine and ivy wreath
Ran forward to his rhyming,
And from the valleys underneath
Came little copses climbing.

The birch tree swang her fragrant hair,
The bramble cast her berry,
The gin within the juniper
Began to make him merry.
The poplars, in long order due,
With cypress promenaded;
The shockhead willows, two and two,
By rivers galopaded.
Came wet-shod alder from the wave,
Came yews a dismal coterie;
Each plucked his one foot from the grave,
Poussetting with the sloe tree.
Old elms came breaking from the vine,
The vines streamed out to follow,
And, sweating rosin, plumped the pine
From many a cloudy hollow."

It has been well pointed out that the apple tree has the most glorious history, in spite of the acknowledged might and grandeur of the oak. Symbolic of man's temptation and of Venus' love, the apple is the fruit of Solomon, and Hercules, and Ulysses, and the food which ever evades the unhappy Tantalus. The space of this article might profitably be taken up with the lore of the fruit that is most beneficent to man. In the face of our regard for the apple it is odd to read that the angel Azrael holds it beneath the nostrils of the dying. Not to tell the familiar tales of the apple of Discord, and the golden apples of the Hesperides and Atalanta, it may yet be interesting to recall the reason why the apple became associated with the Theban Hercules, who was known as Melius. It appears that once the Asopus overflowed and prevented the bringing across of sheep to the altar of the strong demi-god. Some suggested that "melon," the word for "sheep," was identical with that for "apples." Thus were sacrificed apples fitted with twigs for legs, and the symbolic sheep became the customary offering.

The goddess Iduna, of the Scandinavian myths, was guardian of those apples which the gods ate as a precaution against death. Loki, god of strife and spirit of evil, carried off the fruit, and everything went wrong among gods and men until the dwellers in Asgard were able to recover their sorely-needed aliment. The Druids paid reverence to the mistletoe that clung to the apple tree and

Legends of the Trees

the oak, and on Christmas Eve in Devonshire, farmers sprinkle with cider the honored tree of Pomona and then dance around the knotted trunk. Sir John Mandeville tells us that the pigmies were nourished by the mere scent of the apples of Pyban. In England, girls are known to stick sweetheart-named apple seeds on their foreheads, the seed that sticks the longest indicates the bridegroom; and on New Year's night the Silesian girls place apples underneath their pillows to promote dreams of a husband. Most pathetic of all, the hand of more than one dead child of Silesia clasps an apple with which it may play in Paradise.

Ovid's tale of Erisichthon and the oak gives a vivid impression of the ancient regard for Jove's own tree. Erisichthon, who cared neither for gods nor men, ordered his servants to level a grove that was sacred to Ceres. When he saw them hesitate to attack "a venerable oak, so large that it seemed a wood in itself," he seized the axe. A bystander, in horror of the sacrilege, took hold of the weapon, only to have it strike off his head. Soon the oak was prostrate. "Then"—to quote from Bulfinch—"from the midst of the oak came a voice: 'I who dwell in this tree am a nymph beloved by Ceres, and, dying by your hands, forewarn you that punishment awaits you.'"

The sister Dryads implored Ceres to revenge the fearful act of impiety, and the goddess condemned Erisichthon to eternal famine. Poisoned by an insatiable appetite, he spent everything he had on food which gave him no satisfaction, and finally he sold his own daughter. She, standing by the seaside, implored Neptune to deliver her from slavery, and she was transformed into a fisherman. To the questioning of her master she replied: "I wish I may never catch another fish if I believe any woman or other person except myself to have been hereabouts for some time." Changed into her usual self once more, she was re-sold by Erisichthon, then re-metamorphosed. The process

went on until the father's desire for food grew so prodigious that he began to devour his own body, and thus died.

To the Druids the oak probably signified the Supreme Being, and the mistletoe, man's dependence on him. In Westphalia the survivors of a family have the custom of addressing the nearest oak with the words: "The master is dead! The master is dead!" and in other parts of Germany holes of the oak, lime, and pine are looked upon as pathways of the elves. Sickly children are dragged through the openings in the belief that the tree has curative powers.

The myrtle was the tree of Venus, either because she sprang from the sea-foam with myrtle leaves on her brow, or because, out of pity, she transformed the maiden Myrsine, first loved, and then abused by Minerva, into a myrtle tree. In some parts of Greece, Venus was known as Myrtilla. Held up to the light, a myrtle leaf appears to be riddled. The story goes that Phaedra, wife of Theseus, was enamoured of her stepson, Hippolytus, and that while the youth was exercising his horses in the arena, she amused herself by pricking myrtle leaves with a hair-pin.

The laurel, or sweet bay, was adopted by Apollo in memory of the nymph Daphne, who, eluding his eager embrace, was changed into this tree. That the Greeks hung laurel over their doorways in order to ward off lightning and evil spirits is less known to us than that among the ancients it was the symbol of victory and of clemency. Dispatches announcing victory were wrapped in laurel leaves, triumphant Roman generals were crowned with it, and the rank and file carried sprigs of it. The victor in the Pythian games of Greece was wreathed in honor with laurel, but it must not be forgotten that the winners in the Olympian contests wore wild olive leaves, and that for the illustrious of the Nemean and Isthmian games the rewards were parsley and green pine leaves. Laurel

leaves under one's pillow were said to inspire immortal verses. During the middle ages poets were crowned with the laurel and its berries, hence the expressions, "Poet Laureate," and the word, "bachelor," from the Latin *baccalaureus*, meaning "laurel berry." And since a student was expected to waste no time by the family hearth, "bachelor" came to signify an unmarried man.

The tenth labor of Hercules was taking captive the oxen of the monster Geryon. While the hero slept, the giant Cacus carried off part of the cattle to his cave, which was concealed by white poplars, and it was a branch of this tree with which Hercules bound his brow after he had slain the monster. The twelfth and last labor of Alcides was the bringing up from Hades of the three-headed dog Cerberus, guardian of the home of the dead. On his triumphal return the hero wore a wreath of white poplar. Sweat had bleached the inner side of the leaves, and the smoke of the infernal regions had blackened the upper surface, in which state the leaves have ever after been. All persons sacred to Hercules were adorned with white poplar; and many a glorious conqueror wore it.

And the black poplar was not without honor. The Heliades, sisters of the ill-fated Phaeton, were transformed into this tree.

"Him the Thunderer hurled
From the empyrean headlong to the gulf
Of the half-parched Eridanus, where weep
Even now the sister trees their amber tears
O'er Phaeton untimely dead."

—*Milman.*

Black poplar leaves actually exude moisture; and on this tree the sun shines most brightly.

These are but a few of the notable legends of the trees.

"Much can they praise the trees so straight
and hy:

The sayling pine; the cedar proud and tall;
The vine-propp elm; the poplar never dry;
The builder oake, sole king of forrests all;
The aspine good for staves; the cypresse
funerall;

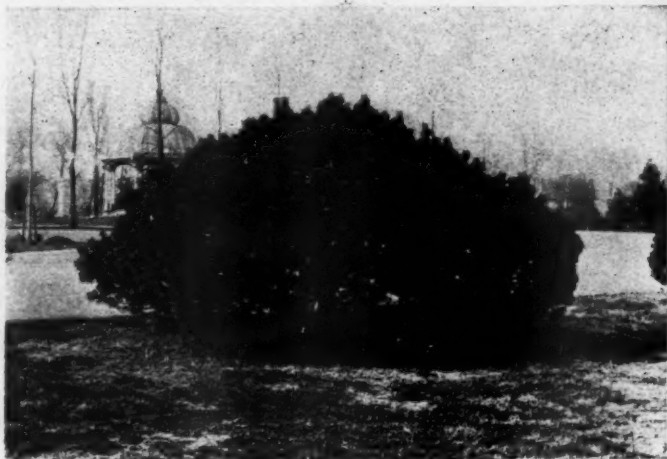
"The laurell, meed of mightie conquerours
And poets sage; the firre that weepeth
still;

The willow, worne of forlorn paramours;
The eugh, obedient to the benders will;
The birch for shaftes; the sawlow for the
mill;

The mirrhe sweete-bleeding in the bitter
wound;

The warlike beech; the ash for nothing ill;
The fruitfull olive; and the platane round;
The carver holme; the maple seeldom inward
sound."

—*Spenser, "The Faerie Queene," Bk. I, Canto I.*



DWARF OR MUGHO PINE (NEEDLE EVERGREEN)
Photo. by Mrs. Seavey.

Trees on Small Home Grounds

By Frances Copley Seavey

"As trees are, after the surface of the ground, the most permanent element of the landscape, they ought to be planted with careful deliberation as to the intended artistic effect and their fitness to the soil and climatic conditions, for mistakes in planting trees are afterwards not easily corrected and rarely without injury to the original artistic design."

—*Cyclopedia of American Horticulture.*

PEOPLE who are deprived of intimate, friendly relations with trees are doubly unfortunate. They not only miss some of life's pleasantest occupations, associations, and memories, but they never make the real acquaintance of trees, the noblest and most human of earth's ornaments. Trees rarely mean anything more to them than poles, ties, lumber, or firewood, while to the initiated they appear what they are—living entities possessing more or less subtle personalities which influence in some degree, and always beneficially, every human being who knows them well.

It goes without saying that all home grounds should possess trees suited to their area, character, location, and needs. This is generally admitted, but, as an authority has said, "It is not so much in

this day that there is a lack of planting, as that planting is meaningless"—evidently without intelligent intention or definite purpose. This is, perhaps, more true of trees than of any other class of planting material, because trees are more generally planted and because, having greater size and longer life, the bad results of haphazard, thoughtless, or ignorant placing become in time painfully pronounced. Examples in proof of this fact are not far to seek. They multiply themselves on all sides. Everywhere are seen mutilated trees, the branches of which have been unceremoniously lopped off (almost invariably without regard for the scientific methods of doing such work which would preserve the life of the remainder of the tree) because they interfere with practical affairs; and every-



WINTER FOLIAGE

Photo. by Mrs. Eugene Kieckhoefer.



AN OPEN AIR READING ROOM

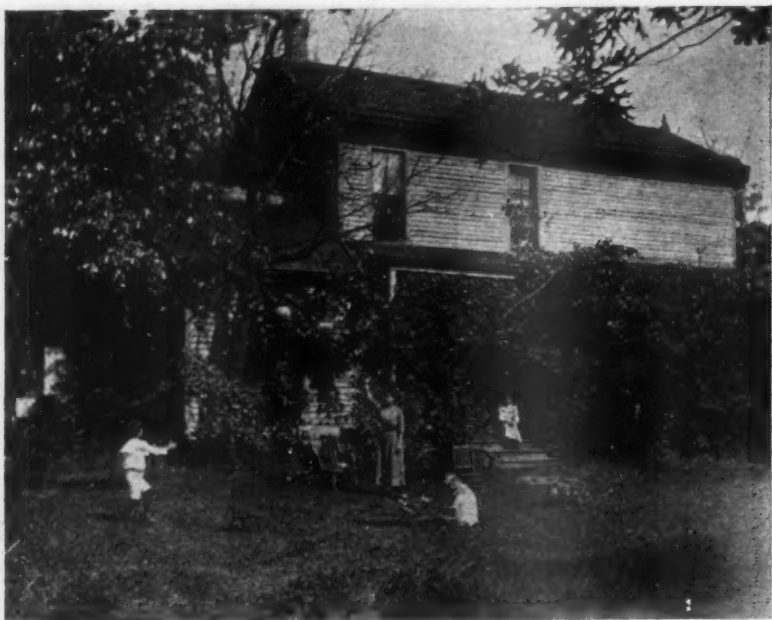
Photo. by Mrs. Seavey.

where are seen houses or other buildings with the sunlight shut out and desirable views closed off as effectually as by walls of stone or of brick, by trees, fine in themselves, so good, indeed, that people hesitate to do what is obviously the proper thing—to cut them down. For full grown trees sometimes command the respect and consideration denied them in youth and immaturity—but not always. It is on record that an august white oak, one of the few remaining specimens of these venerable aristocrats of the eastern United States, which antedate the landing of Columbus, was cut down a few years ago by its vandal owner for the value of the fire wood it contained: such a tree as Inness loved to paint, whose grandeur and presence, by the genius of the painter, are felt even from the canvas.

The problem of choosing trees and

placing them on small home grounds is one that demands especially careful consideration. First, what purposes are the proposed trees designed to fill, and are these purposes legitimate? Second, where must they be placed to best serve those purposes? Third, what specimens and varieties will most fully answer the practical and the esthetic requirements? Anyone who delves into the merits of the matter to the point of figuring out reasonable and honest replies to this short but all important list, really needs only a few hints to produce on any given plot something worth while.

On very small inclosures, particularly if closely encompassed by grounds already containing trees, the selection is restricted to sorts that make only moderate growth, say thirty or forty feet; while but one, or possibly two



PLAY GROUNDS FOR CHILDREN
Photo. by Mrs. Eugene Kieckhoefer.



"OPEN CENTER" EFFECT
Vines "knit the house closely to its site." The background of small trees is in this case rather too close for the best results.

of those that attain the largest size are either advisable or desirable on plots of average area, say of fifty feet frontage by one hundred and fifty to one hundred and seventy-five feet in depth. The large trees as well as those of medium size must be chosen with the utmost care and judgment from those that best suit existing, or attainable conditions of the soil, climate, atmosphere, exposure, attention, etc., and that are least subject to the ravages of insects and disease, while not overlooking the point of fitness in habit and appearance. After all of these aspects of the case have been conscientiously considered, there will still be ample opportunity for intelligent supervision when the treasures are planted—but they are likely to prove well worth all the thought and care their fortunate owner devotes to them.

Some of these trees should be chosen from among those possessing the natural habit of branching very low, and be allowed space to develop this characteristic from the outset. One such well and correctly grown specimen will produce more beauty, stamp more individuality on the home, and give more satisfaction to its inmates, than all the "trimmed up" trees that could be crowded into a county. The trees of tallest growth should be placed at the rear of the grounds as a background for the house, with perhaps one (usually of secondary size) toward the rear on the side of the lot where shelter from sun and wind is most needed, provided the width of the lot and the location of the dwelling leave enough room for it without crowding.

These tall trees may be supplemented by others of medium or small size which would better be introduced as the tallest specimens in plantations of varying width and height massed between (sometimes around) the tall ones. Such plantations may and usually should be further increased in width and extended along the side, or sides, of the enclosure by shrubs, to frame and set apart the area from adjoining grounds, leaving a comparatively

"open center" of green sward as a foreground to the picture from which the house should seem to grow, in company with certain minor plantings of vines, shrubs and perennials that, clustering in its angles and rounding out its corners,



RUSSIAN GOLDEN WILLOW

Showing the beauty of naturally grown trees, *i. e.* not "trimmed up."

Photo. by Mrs. Seavey.

serve to knit it securely and cosily to its site.

The plantations suggested as outer boundaries should be irregular on the inner side and irregular in height. When well-arranged, such plantings open up pleasant, and close off undesirable, views, furnish play of light and shade, add depth and perspective to the picture, make an agreeably broken sky line and create boundaries and an illusion of greater area, all of which tend to develop a degree of mystery that stimulates imagination; a prime requisite of every artistic creation.

The plantations may contain material productive of an endless wealth of interest, pleasure, and amusement. The boy whose

home door yard boasts a "pussy willow," flowering trees, trees producing fruits either edible or ornamental, or nut trees, is likely to be a home-lover as well as an extremely popular resident of any "Boy's Town." All these things are equally attractive to girls and are by no means disagreeable to "grown ups," while they are loved alike by birds, beasts, butterflies, and bees. This sort of planting also furnishes shaded nooks for hammocks and easy chairs, sheltered playgrounds for the children, which may readily be planned to accommodate tennis and croquet; and drying grounds, screened from the public eye, should always be provided in a location where the trees, or hooks on buildings, or vine-covered posts, shall replace the unsightly conventional clothes line posts.

In such a home the trees are members of the family. They and the children grow up together and receive almost equal consideration. The boys haunt the branches of oak and of elm; for the girls, Lady Linden, in her roomy corner, trails

tulle robes, like the sweeping gown of a princess across the lawn; while the little ones seek shelter from sun and shower beneath the natural umbrellas of picturesque thorn or dense dwarf trees. And from neither boys or girls will these memories depart while life endures. To them the oaks of later years rustle an old, familiar greeting, and the hum of myriads of bees among honey scented linden blossoms recalls visions of youth's bright fairy-land.

It is well to remember that in the selection of trees, as of all planting material, there is practical and esthetic advantage in choosing native species, varieties that do, or might, grow in the immediate vicinity. They will be more likely to thrive and they will always look well because they are in harmony with the landscape and with the spirit of the location. It is accounted an evidence of fine feeling to appreciate the simple, native growths because they have the rare and enduring beauty of fitness. It is a horticultural expression of the simple life.

Some Historical Trees

By Mrs. Herman J. Hall

NOT long ago a philosopher from Harvard College was heard to say: "The American is an idealist but he finds it difficult to put his ideals into practical life." We love natural beauty, yet we have recklessly destroyed our forests and, with very few exceptions, have failed to preserve the single growths which would have been fitter monuments to the history of our cities and towns than the noblest of architecture or the most elaborate of sculpture.

But though existing specimens which have witnessed the stirring events of past centuries are few, we should preserve their memories in song and story by brush

and chisel in order to inspire Americans with a more intimate knowledge and a greater love for trees.

The dramatic passing of a tree is recorded by the historians of Hartford, Connecticut. "The hero fell as the storm king passed," was the leading thought on the morning of August 21, 1856, when the townspeople were summoned to hear an oration over the prostrate trunk of their treasure, the "Charter Oak," whose age was estimated at nearly two thousand years and whose roots extended over a hillside to a ravine below. The red man had cherished this growth as his agricultural calendar before the white intruder

took possession of the land, and had planted his corn when the leaves had developed to a certain size. At the time when the state charter would have been confiscated by the English, a doughty patriot hid the document in the oak's hollow trunk, where it was preserved for subsequent service to the state.

Another oak which in 1884 was seventeen feet in circumference, has matured near the site of the old Eliot meeting house at Natick, and was a survivor of the "peace trees" brought to John Eliot by the Indians. Longfellow writes of this tree:

"For underneath thy shade, in days remote,
Seated like Abraham at eventide,
Beneath the oaks of Mamre, the unknown
Apostle of the Indians, Eliot, wrote
His Bible in a language that hath died
And is forgotten, save by thee alone."

The people of Dedham also cherished a white oak whose splendid proportions are etched on the town seal. Although the Waverly oaks at Beaver Brook Reservation are much larger, the smallest showing 750 rings when it fell, none equalled in beauty the Avery oak at Dedham. George Fox, the founder of the Quaker colony at Flushing, Long Island, has immortalized a huge oak, having used it as a pulpit. When four hundred years old its circumference was sixteen feet and the density of its foliage remarkable.

Next to the Charter Oak, the most important growths in Eastern States were the so-called "Liberty Trees" which were mostly elms. They were all selected because of matchless size and beauty, but the one at Providence had such spread of branch that it sheltered a large concourse of people when, in 1768, it was dedicated to the "Sons of Liberty." The great elm at the junction of Essex and Washington Streets, Boston, was utilized as a standard by representatives of this same organization whereon they hung decorations, proclamations, and effigies.

But the greatest interest is centered about the Washington elm at Cambridge, which is guarded with increasing vigi-

lance as the years pass and arboriculture increases. It was beneath this venerable growth that Washington took command of the Continental army, July 3, 1775. As the sunlight, filtering through the great branches of the elm, fell athwart the uplifted blade held by the mounted figure of Washington and, again, upon the faces of the patriots aglow with loyalty and courage, it would seem that Nature herself gave the blessing to those hearts who wrested liberty from her captor and enthroned her forever above American soil.

A majestic elm, set out by Captain Daniel Henchman, was long famous as an old settler on Boston Common; while the one at Newtonville, Massachusetts, which had shaded the homes of three governors, was generally considered the most important landmark in the town.

More fortunate is New York City, which, it is said, still possesses several of the original circle of cypress trees which were on the old Jumel estate, now near 159th Street. These trees were a present to Mr. Jumel from Napoleon, who imported them from Egypt. Not far distant from this broken circle is a group of gum trees, relics of thirteen specimens planted in his garden by Alexander Hamilton to represent the thirteen original states. They stand near the rectory of St. Luke's, which was once the Hamilton mansion.

Romantic memories attach themselves, also, to a large pine which grew near the village of Fort Edward on the Upper Hudson. For many years the words, "Jane McCrea, 1777," could be deciphered in the bark. Jane McCrea, a beautiful girl, affianced to a young soldier fighting under Burgoyne, was visiting a young woman at Fort Edward. While walking near the village, one day, the two girls were surprised by Indians, seized, and carried off. An alarm was raised and a detachment of soldiers sent in hot pursuit. In the skirmish which ensued as the soldiers overtook the abductors, Jane was accidentally shot, and slipping from the

pony on which she had been placed, fell expiring beneath this pine tree. Before anyone could prevent, she was scalped and an Indian had escaped with the lock. He rode into Burgoyne's camp and sold the treasure. The girl's betrothed recognized her hair and immediately deserted.

The redskins were even more successful in their depredations in 1791. Then "Little Turtle" and his band destroyed the white troops near an enormous apple tree which had taken root at the junction of two rivers forming the Maumee in the state of Indiana, where this tree has been noted as an historic monument.

However, the tree of trees was the stately elm which spread its protecting arms above another band of Indians gathered to form a solemn treaty—which was never broken—with the noblest of Pennsylvanian colonists, William Penn. The sheltering witness at Shaxamaxon, however, was felled by a gale in 1810. One may view a portion of the trunk at the Penn family seat in England, or in an armchair made for Dr. Rush. Charleston also records an important council meeting beneath a tree, during the siege, and this particular magnolia has been accorded the liveliest care and affection ever since; which is true, as well, of the splendid live-oaks, once a part of the old Foucher plantation, now Audubon Park, New Orleans. John Audubon loved to study nature beneath the fringed branches of these patriarchal growths which were saplings when the first white man landed on America's shores.

Like the great ornithologist, so did the statesman Zachary Taylor love to sit under a tree and muse; and Wisconsin people at Green Bay remind their children that they should protect the old elm that once overspread the officers' quarters at Fort Howard. Today, the elm shares a portion of the switch yards of a railroad. This same state boasts an oak still existing at the western extremity of Lake Geneva, in which "Big Foot," the chief, buried his first born son shortly after the white man first settled in that locality. The coffin in which the remains were enclosed was a hollow log which was suspended in the limbs of the tree. The stump of another growth was long pointed out as the "flag staff." It grew in front of Big Foot's lodge which was the Council House of the tribe. It was upon this tree that he "displayed his standard."

But while we pay homage to single historic specimens, let us remember the groves of redwood in California which are prehistoric and which, today, are in danger of annihilation. Some of these have possessed rings indicating over 5,000 years of growth. The "Father of the Forest," when felled was 400 feet in height. The "Grizzly Giant" has a circumference of ninety-three feet. No specimens of vegetation have shown such intense vitality; no cathedral was ever so magnificently buttressed; no column so imposing as these giants of the ages, that tower above the races whose indifference or heartlessness permit their destruction.



"The Trees of the Lord" and "The Tree Butcher"

By John Davey, Kent, Ohio

THIS is a somewhat cold but a clear March day, business is a little quiet; let's go a-hunting. There is no law against shooting any time of the year—with a camera.

PHOTOGRAPH NUMBER ONE

Well, here's a fine maple, let's box it up—in the camera—and send it to the Tree



PHOTOGRAPH NUMBER ONE

Number of THE CHAUTAUQUAN. The readers of that magazine should know what is going on, and learn how to stop the deplorable destruction of our fruit and shade trees—as well as the forests.

What a faithful friend of man is the tree! Standing the storm and winter's sleet, and shielding us from the summer's heat. Here is a tree in perfect health, and a representative of that marvelous combination of diversity and symmetry in nature which is so restful to the tired brain and aching heart. Already the cheerful note of the robin is heard and in this beautiful tree some of them will construct lovely little homes. What a charming place from which to introduce a new family into a world of struggle!

PHOTOGRAPH NUMBER TWO

Oh, my! here is our magnificent maple again. It has gone through the summer, and, by transpiration, has thrown off into the atmosphere some five hundred barrels of water. "Don't believe it?" Well, my friend, you would better be reading up a little to see how we are changing our climate by destruction of the forests; but we will not discuss that subject just now.

What beautiful tints and gorgeous markings have the leaves of the maple! I love all trees, but there are three that seem to surpass all others: the maple for its richness of foliage, the oak for strength, and the elm for its arching habits and peerless drapery.

Who—that loves a tree—has not stood spell-bound and compared the giant elm to the human frame? From the majestic trunk extend the powerful arms. There are the "joints" and, finally, a division into the fingers on the tops of which are borne the modest flowers and those mar-



PHOTOGRAPH NUMBER TWO

velous structures we call "leaves." Oh, the beauty of a leaf! How charming its veining! How divine its mission of pre-

paring oxygen for the animal kingdom! And—Hark! C-r-a-s-h! Horror! one of those miserable "tree butchers" has got loose! see that huge branch falling! Come, let's investigate!

Hello! What are you doing there?

"Can't you see?"

I think we can. By what authority do you destroy a branch that it has taken nature over half a century to build?

"To be plain, sir, it's none of your business; but to be half civil with you, by the authority of the owner of this property."

Does he know what you are doing?

"No, he doesn't bother his head about it; he leaves it to me. I am a man of experience; I have followed this work for a quarter of a century."



PHOTOGRAPH NUMBER THREE

Did you ever study tree life?

"I should say so: I have seen trees as long ago as I can remember, and would like to see the fellow that can stump me on a name."

Do you know how a tree is constructed?

"Constructed! Who cares anything about that? What our business men want is not a lot of college-bred fellows running around with high-falutin language telling how trees are 'constructed,' but a

man who can swing an ax and run a saw and earn his two dollars a day."

Did you cut off the branches that we see lying all down that street and in the lawns?

"I did sir; and it took me only two days to do it. Fully twenty wagon loads of them off, and cost only four dollars."

How long have you worked on the trees in this town?

"About twenty-five years, and never had a man say I 'soldiered' on him."

So you are the recognized "Tree Man" and people rely on your judgment?

"I am the 'Tree man,' sir; and my judgment in the town is considered final, and my word is law on the subject."

PHOTOGRAPH NUMBER THREE

I cut this stub (the middle one in the photograph) from yonder maple tree. Did you trim that tree?

"Yes, sir; one year ago, and it didn't take me over an hour to do the job."

I do not doubt that you are honest in putting in your time faithfully, but do you know you are killing the trees?

"Do you—a stranger—come into the town and insult an honest man by insinuating such a charge?"

No insulting about it; but it is certainly time that you knew what you are doing. Did you trim that apple tree from which I took the specimen (at the right in the photograph)?

"I did, sir; and have the respect of the owner; the work was done some ten years ago."

Do you think it a trifle that you inflict huge wounds that result in decay clear to the center of the trunk and finally kill the tree?

"That's nothing; thousands of trees over the country are like that. When they don't do well, dig 'em out and put in others."

PHOTOGRAPH NUMBER FOUR

Did you cut the tops off these trees? (Showing photograph number four.)

"I did, sir; and wasn't long about it."

Did you ever examine the wounded tops in after years?

"No, sir; don't fool any time away in examinations."



PHOTOGRAPH NUMBER FOUR

Here is what follows your ignorant practices of lopping off the tops of trees and leaving the wounds unprotected. (Showing photograph number five.) The centers decay, catch the water which accelerates the rot, and you tree butchers and the owners are both ignorant of what is taking place.

Look here, man; you and the class that you represent have destroyed millions of trees in the States, and reduced the real estate value in some cities one-fourth. If I expressed my opinion of you according to the feeling I have toward you, in consequence of your infamous work, it would be in language hardly fit for a Sunday school paper or THE CHAUTAUQUAN. Granting that now and then there might be an honest man, like yourself—as far as putting in time is concerned—yet the greater portion of your class are not only grossly ignorant of tree life and its requirements, but unscrupulously take advantage of the anxiety of citizens for the welfare of their trees and destroy the trees that are intrusted to their care.

Those of your kind who are purposely destroying trees just "to make a living" should be in the penitentiary, and those who cannot or will not learn how to perform the work should honor what manhood they have left by following some other occupation in which they can do no harm.

Citizens of America: Not ten per cent of our trees are sound, and the main troubles are attributable to the ignorant, vicious work of the fellow appropriately called "The Tree Butcher."

After nearly fifty years care of trees, I have come to the conclusion there is but one remedy, namely: to *teach the child*.

Things are moving in the right direction. Nature study in the public schools is helpful, but we need the immediate removal of the "tree butcher." I am sending trained young men into different cities and taking boys from the high schools and by putting them under a season's drill making pretty good, practical tree sur-



PHOTOGRAPH NUMBER FIVE

geons. However, I use no boy who indulges in alcoholics or tobacco; not so much because of a temperance hobby as from the necessities of the case. Oftentimes these young men have to work a hundred feet high or more, and we find that the strictly temperate boy has the best nerve and the clearest brain.

Tree Planting on Treeless Land

This whole "tree problem" is so far-reaching that it demands the closest attention of the best minds of our country. President Roosevelt has recently said that "the preservation of our forests is one of the greatest internal problems." Whether

the President comprehends that not one in ten of our trees is perfectly sound I know not; but such, alas, is the deplorable fact.

Away with the tree butcher! Educate the child!

Tree Planting on Treeless Land

By Samuel Monds Coulter

Professor of Botany, Washington University, St. Louis.

ON account of the rapid disappearance of those trees which are best adapted for lumber, telegraph and telephone poles, railroad ties, the manufacture of pulp and other marketable products, a feeling of anxiety has arisen as to what will be the final outcome of this wholesale cutting away of our forests. This has been lately followed by a movement looking towards the reforestation of areas which have been denuded by lumbering operations or by forest fires, by planting trees on such lands as are not suitable for agricultural purposes. With the intention of ascertaining the extent of this movement, the writer has collected the data for this paper, hoping that a knowledge of what is being done may create a wider interest in this important work. In compiling the article he has quoted largely from the reports of the United States Forester and the reports and personal letters of the officials of such states as have undertaken forestry operations.

This work is at present carried on in three different ways; first, by the United States government through the Bureau of Forestry; second, by those states which have organized a department of forestry; third, by private individuals and corporations, either alone or in coöperation with state or national organizations.

The annual report of the United States Forester for 1904 gives a summary of what has been done by the Bureau during

the past year and what is contemplated for the immediate future. One of the most noticeable features of this work is the coöperation with private owners in the planting of trees. While the Bureau does not furnish seeds or trees for this purpose, it gives the services of specially trained men who examine such private lands and prepare plans for planting. The owner is advised as to the feasibility of setting out trees and the kind of tree best suited to the location and conditions. It is difficult to estimate the actual number of trees which have been planted in accordance with such plans. Most of the planting has been in the form of small shelter belts and groves set out by farmers.

In the five years during which this policy of coöperation has been in force, an aggregate of 334 plans has been prepared, comprising about 14,000 acres. This, however, does not constitute the whole amount of planting, since many farmers use the planting plans of their neighbors and do not report to the Bureau. As an example of this kind of work may be cited two distinct regions for which plans were prepared in 1904. The first was the plains of eastern New Mexico and western Texas. It is known that, as a result of this plan, 300,000 trees were planted on 237 acres. The second covered the flood damaged land along the Kansas River and resulted in the publication of Circular No. 27, on the "Reclamation of flood

damaged lands in the Kansas River valley by forest planting." This circular has been distributed among the farmers of this district and planting plans will be sent to those who apply to the Bureau.

Tree planting has been undertaken in reserves which have been set apart by the government for this purpose. There were 100,000 pine seedlings set out on the Dismal River Reserve, in west-central Nebraska, in the spring of 1903. These trees were set in deep incisions made with a spade in the loose sand of the sandhills. Unfortunately, a large part of the trees were injured in shipment, so that only one-fourth of them survived; these showed a vigorous growth through 1904.

Several methods of seeding direct in the sandhills have been tried, but better results have been accomplished by growing seedlings in a nursery. Over a half million seedlings were raised in this way in 1903, and, in the spring of 1904, 300,000 of these were set out on 335 acres. In June nearly ninety-five per cent of these were living and growing. In this nursery about 1,500,000 small trees are now ready for planting, April, 1905.

Planting on the San Gabriel Reserve, in California, has been in progress experimentally for three years, but, until the establishment of a nursery at an elevation about as high as the region to be planted, the experiments have met with little success. A nursery of eighty acres, with a large reservoir in connection with it, has been established in the San Gabriel Mountains, 2,500 feet above sea level. A portion of this area was planted in March, 1904, with spruce, cedar, and several species of pine. The results of this experiment will be watched with considerable interest, as they will determine the feasibility of this method of securing seedlings for planting in mountainous regions.

In the way of forest replacement, preliminary studies have been carried on in Colorado, Kansas, New Mexico, and southern New England. For example, on the Pike's Peak Reserve, Colorado, at-

tention was principally given to the history and causes of forest fires, the young growth which has followed fire, the rate of growth of the principal trees, the conditions influencing forest replacement on burned over areas at high altitudes and the necessity of supplementing natural reproduction by planting. Here, as in other areas, the preliminary studies will be followed by practical experiment, resulting eventually in the reforestation of these denuded tracts.

Considerable work has already been done by some of the states along the line of forest replacement. The state of Pennsylvania has instituted a forest nursery at Mont Alto and will probably establish others at different places. The young seedlings derived from this nursery will be transplanted upon lands which have been purchased for forest reserves. At the present time, there are 200,000 seedlings of red oak, chestnut oak, white oak, red ash, horse chestnut, yellow pine, white pine, Douglas fir, red spruce, catalpa, locust, and chestnut, half of which will be set out this season and new seeds planted. This nursery will soon be enlarged fifty per cent and, in a short time, it will contain 400,000 seedlings. Tree planting in Pennsylvania was begun in the spring of 1902 by setting out 5,000 two-year-old white pines in the South Mountain Reservation; in the spring of 1903, 1,600 more were planted in the same region; in the spring of 1904, 1,000 more white pine and 2,000 two-year-old catalpas. Last fall one acre was planted with catalpa and black locust, and a five acre tract of low, loamy soil, in the north-central part of the state, was planted solidly with black walnut. Much work is contemplated for this year, among which is the planting of an old farm in Huntingdon county with 20,000 two-year-old white pines. In this connection, it may be well to state that the forestry officials of Pennsylvania are particularly anxious to regenerate the white pine forests, because this is one of the most

Tree Planting on Treeless Land

valuable timber trees and, also, one well adapted to make good growth under the conditions existing there. All the planting will be with trees raised in the state nurseries, as they have adopted the policy of purchasing no seedlings from private nurseries. The people of this state are awake to the necessity of reforesting such denuded lands as cannot be utilized for farming, and requests are constantly coming in for information regarding methods of planting. This work will be carried on diligently and in an increasing degree, so that it is expected that there will soon be a creditable showing of new trees on the forest reservations of Pennsylvania.

In New York the forestry department is doing all that can be done with a limited appropriation, and the officials are anxious to undertake on a large scale the work of reforesting the denuded lands of the state. The Superintendent of State Forests states that he believes that the formation of artificial forests is feasible and profitable in this country, as well as in Europe. There are more than 50,000 acres of waste, burned over, and denuded land in the Adirondack Park alone, and, in order to secure data as to the expense and feasibility of reforesting such tracts, 700 acres in the Adirondacks were set apart for experimental purposes. This tract originally sustained a growth of large white pines, which had been lumbered off and the land entirely denuded by repeated fires. It was an open plain, broken by long, rolling ridges, the sandy soil covered with a thin deposit of ashes left from forest fires. Over a half million trees, from two to four years old, were set out in this tract at a total expense of less than half a cent per plant, including cost of seedlings, cartage and labor. Half of these young trees were Norway spruce, the remainder were white and Scotch pine, Douglas fir, European larch, and black locust. With the exception of the Norway spruce, these trees have made favorable progress, although the planting was all in poor soil. It was evi-

dently a mistake to transplant the spruce seedlings into such poor soil, for they have not made satisfactory growth. Hereafter the officials will confine the planting of Norway spruce to the best soil.

At various points in the state, forest nurseries have been established; in the Catskill region in Ulster county, four acres were prepared in 1902 for this purpose. A portion of the tract was laid out in beds, four feet by twenty, and planted with seeds of pine and spruce. Seeds of chestnut, walnut oak, and basswood were planted in long rows. It has been found that the soil in this region is too stony for nursery purposes and another site will soon be selected on rich bottom soil in the valley. A still larger nursery was established at Saranac Inn Station in the Adirondacks; this contains seven acres of sandy loam and will have a capacity of more than three million seedlings and transplants. At the present this nursery is in a flourishing condition. These nurseries are still insufficient to supply the seedlings needed for the state plantations, so nothing has yet been done in the way of distributing young trees to the people in general. The officials have just ordered 400,000 plants from the commercial nurseries in Halstenbek, Germany, and 110,000 from Illinois nurseries.

As an instance of what is being done by many private owners, may be cited the recent action of the Remington-Martin Company of Watertown. This firm has just placed an order with the Halstenbek nurseries for 625,000 Norway spruce seedlings. This firm and the St. Regis Pulp Company of Watertown are about to establish nurseries for the propagation of seedling spruce, which can be used in their cut over lands.

An interesting way of planting is known as the "seed spot method," which consists in breaking up the ground in small spots about two feet square, at intervals of eight feet each way. A dozen seeds are scattered on the loose earth and lightly covered with soil. When the seed-

lings are two years old, one is left where propagated, the others are used to plant in intervening spaces each way and in other locations as needed. Larger quantities of seed are required for this purpose and for planting in the nurseries. The year 1904 was a seed year for the white pine in New York, this occurring only once in four or five years. The forester in charge engaged a number of men and boys early last September, and spent two weeks in gathering these seeds. A bushel of cones yields a little over one pound of seed, aggregating about 30,000 seeds. Over 500 pounds of seed were gathered at this time, costing fifty cents a pound. This will be used this spring in the nurseries and for seed spot planting. This year the red spruce will bear cones and the seeds of this important species will be gathered in the fall.

In Michigan there are large tracts of land formerly occupied by immense forests of pine; this has been lumbered off and the remaining growth destroyed by repeated fires. These barren wastes have a deep sandy soil, which is of no value for farming land. The attention of the state has recently been directed towards the possibility of restoring these lands to their original condition. So far very little planting has been accomplished. Last year 51,000 trees were set out in these denuded pinery lands, and this year, 80,000 more will be planted. These were

obtained from private nurseries, but the state has now established its own nursery and a half million young plants are growing there. This nursery will be considerably enlarged during the coming year.

Some work has been done also in the Dakotas and in Minnesota, and agents of the United States Bureau of Forestry have just completed an investigation of the areas planted there. In their report, soon to be published, they will state that great benefits have already resulted from this planting, although the trees employed are better suited to grow on river bottoms than in the open prairie. Trees on the prairie must withstand extremes of drought and exposure, and, to be most valuable, should have fairly rapid growth and be of some commercial worth. For future planting, the Bureau will recommend the substitution of certain species of pine, spruce, and larch for those heretofore in use.

Inasmuch as it requires from 20 to 100 years for a tree to attain a marketable size, it is extremely difficult to induce legislative bodies to appropriate funds for the restoration of our forests. Little has been accomplished, therefore, in the way of actual tree replenishing, but much in the way of experimental preparation, so that when public interest is aroused and the funds forthcoming, tested methods can quickly be put into operation.



Tree Protection in the United States

By Mrs. Charles F. Millspaugh

President of the Woman's Outdoor Art League, Department American Civic Association.

PERHAPS the earliest protection to trees in the colonies was in Massachusetts, for in 1637 Watertown was moved to pass a vote at town meeting "to mark the shade trees by the roadside with a 'W' and fining any person who shall fell one of the trees thus marked eighteen shillings." Exeter, New Hampshire, was a close second, when, in 1640, regulations were passed regarding the cutting of some oak trees. In 1793 the Massachusetts Agricultural Society offered prizes to the persons who should cut the trees from the most land in three years; however, so alarming a decrease in forest area was shown by reports received at the time that the policy was speedily reversed and prizes were offered for the planting of trees and the management of woodlots.

Although the agitation for the protection of trees was begun thus early and has since continued with vigor through many channels, yet the forests of Massachusetts and New Hampshire are today reported to be in a deplorable condition as the result of unintelligent lumbering, forest fires, and neglect. At present an unceasing warfare is being waged in cities and towns for the protection of shade and fruit trees from the insect pests that have gained such a fearful foothold, by Tree Protective Associations, Tree and Forestry Committees of women's clubs, the Forestry Committee of the State Federation of Women's Clubs, Forestry Associations and a society with a formidable name, The Massachusetts Association for the Suppression of the Brown Tail and Gypsy Moths.

The laws of tree and forest protection in this country have been the direct outgrowth of influence created by individual and private organizations. Between the years 1785 and 1805 two French botanists, Andre Michaux and Andre Francois

Michaux, in their study of American trees, did much to arouse public sentiment to the necessity of rational treatment of our forest resources. Important influences that followed in more or less rapid succession were the publications of a New York society on "The Best Method of Preserving and Increasing the Growth of Timber," publications of Dr. Warder, Marsh's work, "Earth as Modified by Human Action," and the writings of Emerson and Thoreau.

In 1872 the now memorable act was passed creating an Arbor Day, which resulted in the planting of millions of trees in treeless Nebraska and which has spread an influence far and wide. While there is very little dissent among experts in tree knowledge from the opinion that the usual May date set aside for Arbor Day is altogether too late for the best results in tree planting for nearly all sections of the country, yet the love and interest in trees, and the sentiment aroused, which grows out of the celebration of Arbor Day has undoubtedly been a considerable factor in the promotion of measures for tree protection. By 1873 interest in our forests crystallized in a memorial to Congress by the American Association for the Advancement of Science. As an outcome, three years later, August, 1876, an Agency of Forestry was established by the United States Department of Agriculture. This grew to a Division and finally a Bureau.

The year 1876 saw not only the National Agency of Forestry established, but important agencies for the preservation of trees were created in two widely separated areas, Massachusetts and Minnesota. In Massachusetts the Appalachian Mountain Club was organized to bring together for coöperation those interested in the mountains and forests of New England and adjacent regions, not only to preserve

their present beauty but also to render their attractiveness more accessible by the building of paths, camps, and other conveniences. They have obtained by gifts and purchase several mountain and forest reservations in Massachusetts and New Hampshire, and in public recognition of their services the Legislatures of those states have exempted such reservations from taxation. The club is now lending its earnest effort toward the passage of bills for the establishment of a National Forest Reserve in the Southern Alleghanies, to be known as the National Appalachian Park, another to secure a National White Mountain Reserve, both bills being now pending. Minnesota, in 1876, formed the first association in that state for the purpose of protecting tree interests. This society published a tree planting manual.

Six years later, 1882, a sufficient number of states had joined the movement to induce the holding of a Forestry Congress, which was the forerunner of the present American Forestry Association, the oldest and most influential of the Forestry Associations. This association has been instrumental in arousing popular interest in forestry and especially in advocating and securing the adoption of the federal forest reserve policy, the most important step yet taken by the national government. The recent congress of this association held in Washington clearly evidenced the growing interest among all classes in forestry. The participation in this congress not only of the President of the United States, prominent officials both state and national, and scientists, but also the presidents of railroads, large lumber and mining corporations, live stock and wool growers' associations, land companies, and a great paper manufacturing company is most significant of the fact that interests long supposed to be warring with the idea of forest conservation are now in line with the most advanced advocates of proper scientific forest administration; and this, as President Roosevelt

said, means "the difference between mere agitation and actual execution."

Upon the organization of the American Forestry Association, state forestry associations followed in more or less rapid succession. There are now thirty-three such organizations, thirteen having been formed in the last three years, all engaged in securing measures to preserve and protect our trees.

The Pennsylvania Forestry Association is notable in many ways, the oldest in point of years having an unchanged name and policy, and perhaps the only one receiving its initiative from some women, who have continued to be active spirits in the work. In the nineteenth year of its existence it has seen many of the reforms for which it stood and earnestly supported brought to a complete fruition; it has secured the creation of a forestry commission and the establishment of a State Forestry Bureau, now developed into a Department of Forestry; it has seen forest reserves established until eleven hundred square miles of territory in Pennsylvania are now woodlands controlled by the state government; the acquirement of South Mountain as a forest reserve is fulfilling the additional purpose of providing a suitable place for a Sanatory Camp, where a number of consumptive poor are given the curative treatment of fresh air and wholesome food; there are now on the grounds ten cabins, and six cottages, with a large cottage just completed. Fully two-thirds of all the patients are reported cured after a stay of five months. A Forest School is another progressive feature of the work of the Pennsylvania Forestry Association, which easily leads all other states at the present time in the wide scope of things accomplished. That the influence of that inspiring worker for forest interests, Miss Mira Loyd Dock, whose name has become a synonym for tree protection, has had a large share in determining those results, no one can doubt who has kept in touch with



ELMS AT SHEFFIELD, MASSACHUSETTS

These elms, planted by school boys, are carefully preserved. A reunion was held under them seventy-five years after planting.

the progress of the forest movement.

The Pennsylvania Federation of Women's Clubs has been another co-operating force along these lines. In Philadelphia the City Parks Association has given much attention to a proposal to preserve forty acres of magnificent forest trees in West Philadelphia known as Sherwood Forest. All the Improvement Associations of that part of the city have worked hard to prevent the destruction of the trees and have been vigorously backed by such organizations as the Pennsylvania Forestry Association, the Fairmount Park Association and many others. Also Mrs. Samuel Chew offered the Association a piece of ground, partly woodland, a portion of the estate of the late Chief Justice Benjamin Chew, for a small park. In Mrs. Chew's letter to the corresponding secretary she recommends that the natural level of the ground should be preserved, thus protecting the lives of the beautiful oak trees and other

fine varieties which cover this piece of exceptionally interesting historic ground.

So far as known, the Massachusetts Forestry Association is the only state association of the kind to have a permanent office open every day and all day, thus giving it character and standing. Conferences on tree problems, open to the public, have been held, while lectures on forestry and roadside improvement have been given by members in different parts of the state. Most of these lectures were given through the interest of the Association of Collegiate Alumnae which is doing commendable work in arousing an interest in tree protection. Among the special tasks of the last year has been the preservation of the Carlisle Pines, a work standing preëminent for its educational value. A tract of nine acres in the town of Carlisle, on which were growing over ninety white pines, believed to be the largest group of the largest trees of the species in eastern

Massachusetts, were saved from the lumberman's axe; purchased by popular subscription, and placed in the hands of the Appalachian Mountain Club as a public reservation. When we are aroused sufficiently to the fact that no trees planted by what may be termed artificial means can ever equal in vigor, size, or long life, those original forest growths which had their beginning under conditions which we can never give them, and that once removed we can never replace them with their equals, it will not be necessary for men to plead with other fellow men to help save them for the enjoyment of our own and future generations.

To name all the interests at work in this one state alone would read like a page from an encyclopedia, but preëminent among the forces is one that cannot be overlooked: the various associations of women; the forestry committees of clubs; and the State Federation of Women's

Clubs. The Forestry Committee of the State Federation has urged clubs to maintain forestry committees and establish civic associations. Over thirty clubs have responded with good results. This committee is urging the labeling of trees prominent in a community for beauty or history; in this way attention is called to them and a trend of thought unconsciously aroused which must result for good. Along these lines hundreds of trees are being planted by local clubs, and individual trees are being named in honor of some prominent nature lover, that greater protection will be assured. Winthrop, Massachusetts, is at present making a great effort to preserve a grove of trees set out by George Barrell Emerson, author of "Trees and Shrubs of Massachusetts."

At Sheffield, Massachusetts, many, many years ago some school boys planted elms along the line of the one village street for



ELMS AT SHEFFIELD, MASSACHUSETTS

The tree on the left has been a rallying place for the villagers for many years.

a mile or so, a double row as the picture shows. They have been the pride of the village and the greatest care has been taken of them so that not one has been lost. One of these old elms has been the rallying place of the villagers for nearly a hundred years. The Tree Planting Committee of the Roxburghe Club has a history of perseverance and achievement that would do credit to a much larger body. First making a study of the city trees they found them in a state of decline and decay, with trunks scarred and burned. After three years of struggle by as undaunted a committee of women as ever worked for the public good, an appropriation was finally granted by the council that had hitherto pleaded debt while conceding the necessity of doing something to save the trees if the city was ever to enjoy shade, health, and beauty. The committee's desire was to protect the trees with strong wire netting six feet in height, to prevent gnawing by horses, far more damaging than overhead wires or underground pipes. The work of guarding by wire is begun, some twelve thousand trees being protected thus far, their wounds being treated, cleaned, and restored to health. This is one service the women of the club have done for their native city of Boston. But it is not all; the club made a contribution to the fund for the purchase of the Carlisle Pines; created an interest in trees that was no small influence in forming the Boston Common Association for the preservation of the trees and the Common itself; and worked in connection with the Massachusetts Forestry Association for the election of competent tree wardens at the annual elections. Of five thousand trees given to the citizens of Boston by the Department of Public Grounds in two years, four thousand were given subject only to the order of the Tree Committee of the Roxburghe Club. There is now an enemy of trees at work in Massachusetts seemingly harder to overcome than the indifference of laymen or officials, the ra-

pacious brown tail and gypsey moths. Societies are all joining hands with those already mentioned in an effort to exterminate the pests which threaten destruction of shade and fruit trees. The Forestry Committee of the Massachusetts Federation has issued an illustrated folder describing the operations of these insect depredators and showing pictures of large trees defoliated by them in three days. Trees bereft of their foliage three years in succession usually die. The slogan addressed to all who value the beauty and prosperity of the state is, "help save the trees." The Woman's Club of Salem has aroused public spirit in city and press, and through children has gathered and burned three hundred and seventy-five thousand of the moth nests—a modern instance of burning in Salem much to her credit. Thus the women are working while legislation considers. The Forestry Committee hopes to endorse a bill before the legislature that shall definitely authorize the expenditure of \$60,000 for the introduction of a parasite. Suppression of the coddling moth by a parasite is assured. Experts promise as much for the gypsey moth.

Four years ago the General Federation of Women's Clubs added to its committees a Committee on Forestry. Of the State Federations thirty-eight have appointed similar committees, the chairmen of which constitute the General Federation Committee with a chairman appointed by the Board. It is therefore safe to say that in those thirty-eight states there will be active measures taken during the coming two years to arouse an intelligent interest in trees. "Forestry Day" is already a recognized program in a constantly increasing number of women's clubs. The present efficient chairman, Mrs. Lydia P. Williams, of Minnesota, has rendered excellent service in her own state where for the last six years she has been active in the forestry work of the State Federation, securing the reservation of valuable timber lands fringing



A TREE IN ILLINOIS



TREE CAREFULLY PRESERVED IN YARD OF DR. SCHENCK, ILLINOIS



THE SENTINEL'S MAMMOTH TREE GROVE, CALAVERAS COUNTY, CALIFORNIA

some of their lovely lakes and forming the watershed of the Mississippi.

In Illinois there is no forestry association, no forestry commissioners, no tree wardens. The women of the Waukegan Branch of the Woman's Outdoor Art League department of the American Civic Association are endeavoring to get the street trees put in charge of a competent man. Near Oregon, a small town in Illinois made known to the world through Margaret Fuller and "The Eagle's Nest," is a tract of original pine forest of great beauty. The Oregon Woman's Council worked arduously two years ago to secure the passage of a bill by the Illinois legislature for its purchase as a reservation. The bill passed both houses and wanted only the signature of the governor to insure the safety of the trees. This signature was not given. This winter the bill is again before the legislature under the care of the State Federation Forestry Committee.

Coniferous trees are already being sacrificed by wholesale in the wood-pulp mills while the increasing demand for them to celebrate Christmas season is a growing menace to their very existence.

Dealers have been tempted to largely overstock with them just previous to the holiday time, which resulted a year ago in thousands being ruthlessly destroyed. In Washington it was estimated that two thousand trees of various kinds remained unsold after Christmas. Some were carted away for fire wood while the rest were placed in a pile on the hay market ground and a match applied. The loss was considerable, as many of them had been shipped long distances, two carloads of sweet scented and symmetrically shaped balsams having come from Canada. In Philadelphia the Christmas tree syndicate became frightened at an overstocked market, and destroyed thirty full carloads of spruce and pines a few days before Christmas, by having them loaded on cars, run to dumps some distance from the city, saturated with oil and the torch applied. The *New York Sun* exploded after this fashion: "The Christmas tree dealers who saturated 4,000 trees with oil and then burned them in order to keep prices up by a more limited supply deserve to be hanged on the trees that are left until they almost gasp for breath. Are there not 4,000 families that can't afford

to buy Christmas trees at any price?" The Wild Flower Preservation Society of America urges an active united movement against the extravagant use of evergreens at Christmas.

The Louisville Branch of the Woman's Outdoor Art League exerted every effort to help procure for the city the beautiful Central Park, whose magnificent forest trees were in danger of being cut down to make room for apartment houses. The property has now been purchased by the city and the children of rich and poor will continue to play in the shade of those grand old trees, a heritage of nature that could never be duplicated by any planting done by the hand of man. The Forestry Club of Portland, Oregon, and the Tree Planting Committee of the Improvement Association at Columbus, South Carolina, are widely separated geographically, but have purposes near at heart.

Massachusetts is said to be the only



MRS. LOVELL WHITE

President of the California Outdoor Art League, working to save the Big Trees.



"PROFESSOR GRAY" AND "DOCTOR TORREY"

state having a law requiring the election of tree wardens at each annual town meeting. Other states have in some instances been able to secure a law permitting the appointment of tree wardens by cities of a certain class. The Society for Beautifying Buffalo was successful last year in securing the passage of a bill creating a Forestry Commission which should have charge of planting, transplanting, and removing trees and for the trimming, spraying, and caring for the same in the city of Buffalo. It is thought that this is the first bill of its kind to be passed in this country. Newark, New Jersey, has a Shade Tree Commission created by an act recently passed by the legislature. Kansas City, Missouri, has a city forester, the result of agitation of the civic improvement societies after discovering an incompetent "tree butcher" mutilating the street trees. The Mil-



"ABRAHAM LINCOLN," ONCE CALLED "HERMIT"
320 feet high, 18 feet in diameter.

waukee Branch Woman's Outdoor Art League is endeavoring to secure the passage of a bill pending in the legislature to secure a shade tree commission patterned after the plan of Buffalo and an appropriation by the city council of not less than five thousand dollars nor more than eight to provide for the maintenance of the work, a task requiring patience and effort.

The work of one society for tree protection has become international in its widespread interest, that of the California Outdoor Art League to preserve the Calaveras Groves of Big Trees. It is notable that about thirty women, headed by Mrs. Lovell White, whose enthusiasm has never waned and whose executive ability seems equal to every demand, has been able to arouse the whole country to a sense of the irreparable mistake it would be not to preserve these trees for all time against the greed of man's axe. They are the only survivors of the glacial period left on the earth's surface. Some of these trees were standing in calm majesty on the Pacific coast of this country when the Pyramids were being created by man's

ingenuity in Egypt, and it would be no more vandalism to use the stones of the pyramids for paving blocks than to cut down these stately trees as is being done, to manufacture tooth picks and cigar boxes.

The response made to the appeal of the League was both instantaneous and cordial. Governors of states, colleges, forestry commissions, forestry associations, civic, social, and scientific societies, state federations of women's clubs, and individual clubs throughout the Union, enthusiastically lent their aid to advance the interests of the Big Tree Bill pending in Congress. The bill received the approval of the Public Lands Committee, the endorsement was expressed of senators and congressmen, and the President sent a special message to Congress advocating the passage of the bill, the first instance on record of a President of the United States sending a special message recommending a bill at the instance of an organization managed by women. It was believed the influence was so strong that the bill would be presented without delay, and there was no doubt expressed of its

prompt majority vote. The bill was never allowed to come before Congress.

The people of this country are more than ever alive to the interests of the Big Trees and look forward to a time when this bill will be presented before Congress and its enactment mark an achievement well worthy the effort of the courageous women who have given so much energy and of their best to this work. Defeated but not discouraged, they now have a bill before the California Legislature providing that "any and all moneys hereafter collected and received by the state of California from the United States in payment for claims of the state arising out of the War of the Rebellion and not heretofore appropriated, shall constitute a fund to be devoted by the state to the acquisition, preservation, and protection of forests within the state, and to the interests of scientific forestry generally within the state." It is said that the gov-

ernment is indebted to California for a large sum of money expended by the state in equipping troops to serve the government during war, and that other states have received millions of dollars for the same purpose.

The various organizations devoted wholly or in part to protection of trees in this country may be roughly summarized as: The American Forestry Association and thirty-three state associations, the Forestry Committee of the General Federation of Women's Clubs and thirty-eight state committees, twenty-three hundred improvement associations, and large numbers of unclassified individual societies and clubs. The object of all their endeavors must be the same as the object of the forest policy of the United States as expressed by President Roosevelt, "the making of prosperous homes. It is part of the traditional policy of home making of our country."

The Significance of Arbor Day

By Carl H. Grabo

ARBOR Day, a day devoted to the planting and the care of trees is of American origin. In 1872 the Hon. J. Sterling Morton induced the state legislature of Nebraska to adopt a resolution designating a day on which trees should be planted throughout the state and offering prizes to the society and the individual which should plant the greatest number. The idea sprang at once into popular favor, and over a million trees were planted in Nebraska the first year. Other states soon followed the lead of the "Tree Planter's State," so that now Arbor Day is observed in nearly every state and territory throughout the United States. The time of its observance is of course not at all uniform, but is selected in each case with an eye to climate and local conditions. In the North and West, April

and May are the months usually selected. In the South, late autumn and early winter are more often favored.

In its origin Arbor Day was more material than sentimental. The reckless spoliation of the great forests early alarmed far-sighted and public-spirited men who saw in it a great and direct loss to national wealth, as well as an even greater menace to climate, and, as a consequence, to agriculture. In the treeless prairie states of Nebraska and Kansas the lack of forests was felt, both in the scarcity of necessary timber for building purposes, and in the irregularity of rainfall. Trees were needed to conserve and increase material wealth. States more favored by nature saw in the examples of the prairie states a threat of similar necessity should they fail to keep what they

The Significance of Arbor Day

already possessed. For them the observance of Arbor Day was in the nature of insurance against the future.

But the planting and the care of trees soon became popular not for material reasons alone. In pioneer days a forest seemed an obstacle to agricultural development rather than an assistance. Trees were regarded too often as enemies to progress and civilization, useful only as fire wood. Their beauty was not appreciated until, with the development of towns and cities, men ceased to think only of material development and began to care for the appearance of their surroundings. Then it was seen that trees were beautiful and contributed much to the attractiveness of any community. In the light of this awakened perception trees were planted as ornaments, and it is to this belief in the beauty of trees that Arbor Day appeals.

Arbor Day has been adopted by the public schools and is usually thought of as a school holiday. In nearly all of the states the superintendents of public instruction issue pamphlets of programs and suggestions for use in the observance of Arbor Day in the schools. There it takes its place with Washington's Birthday and other occasions of national observance. One difference there is, however, which Mr. Morton himself early pointed out, between Arbor Day and all other recognized holidays. Arbor Day is the only occasion which is devoted to the future rather than to the past. It does not seek to commemorate dead heroes and statesmen, but it seeks to do something which, in the years to come, will be of growing benefit to the community at large. Its returns are not immediate and are, therefore, the more unselfish.

In its practical observance Arbor Day should be more than a mere holiday or an occasion for the speaking of "pieces." The pamphlets issued by the superintendents of instruction contain many poems and bits of prose, well selected and worth preserving, which can be read

and recited. But they contain as well what is of more importance, suggestions as to the actual planting of trees and flowers in the school grounds. They point out the trees and vines best suited by reason of their beauty, strength, and rapidity of growth, to conditions in various localities. They advocate the cultivation and care of whatever will serve to make the school grounds more attractive, not limiting Arbor Day to the planting of trees merely. Indeed, in its best application to education Arbor Day becomes the outward manifestation of a whole course of nature study. To set aside one day a year on which to plant trees is of little value unless it indicates as well the love and study of trees at other times. Arbor Day as a formal celebration symbolizes an attitude toward beautiful objects and as such is valuable. If in the school children who celebrate Arbor Day there is not awakened a love for trees and flowers, and a desire to know more about them, the day is hardly worth while except in a material way. It should, properly, be the culmination of nature study pursued throughout the whole year.

It is because Arbor Day has other values than the merely commercial and because it has ceased to stand narrowly for the planting of trees, though that is still its primary object, that it is of such great significance in the growing movement for civic betterment. Arbor Day now allies itself with the general movement which makes for improvement in civic conditions, a movement in behalf of more beautiful surroundings and consequent greater pleasure in life. The Arbor Day exercises in the school may consist merely in the beautification of the school grounds—though that in itself is a great deal. But beautiful school grounds must mean in the end, more beautiful surroundings elsewhere. The children trained to study trees and flowers, and to take delight in their cultivation, will, in time, see to it that city streets and country highways are also made attractive.

The Tree Planting Movement

By E. G. Routzahn

Bureau of Civic Coöperation.

THE tree affords the most interesting illustration of numerous and widely diverse influences working to a common end. Some have been enlisted by the economic importance of forest products. Other agencies have been interested in the beauty of the natural woods, by the historic association of certain trees, or the esthetic and sanitary value of trees in the city. Several important departments of the national government are interested in the preservation or extension of forest areas. A number of state commissions are coöperating in similar directions. Several influential forestry schools have been established, and numerous other schools offer forestry or landscape gardening instruction.

Tree propaganda is constantly receiving additions of scholarly and popular books, and the periodicals devoted exclusively to forestry topics are supplemented by special articles in almost countless periodicals.* National and state associations hold conventions and circulate literature. Hundreds of women's clubs have forestry or Arbor Day programs, and the forest and civic committees of the federations of clubs enlist the active aid of influential women throughout the land. Organizations of men, including park associations and commissions and an increasing number of commercial associations, are participating in the tree movement.

Then the public schools—thousands of them—under the stimulus of the Arbor Day movement, the appeals from state superintendents of instruction, the "programs" published in educational periodicals, the booklets supplied by school pub-

lishers, and the appealing literature sent out by the *Youth's Companion* have reached millions of people, and have actually planted hundreds of thousands of trees. The *Youth's Companion*, with the possibility of but very indirect advertising returns has not only sent out quantities of several admirable pamphlets, but has offered prizes to schools and supplied rolls of honor for those aiding in Arbor Day celebrations. Trade literature has been sent out liberally to point the way to the easy purchase of trees, and an army of nursery men and their representatives have sought to further tree buying by their persuasive personal efforts.

The Tree Planting Association of New York City may be taken as a type of the small group of special organizations at work in the larger cities. The New York association circulates literature, encourages Arbor Day celebrations, raises funds for planting trees to serve as object lessons, and successfully seeks legislation more favorable to the planting and protection of trees along the streets of Greater New York. The society began its work by planting individual trees and placing them in charge of schools, settlements, and institutions. The present plan is to plant so that the effect of a row of trees may show the added beauty of many trees.

The expense of planting a shade tree in New York, averaging fifteen dollars, is largely due to cutting the opening in the stone flagging, replacing old soil with a cubic yard of rich loam, providing a suitable iron guard and guaranteeing the life of the tree for two years. This guarantee gives reasonable assurance of the continued life of the tree.

The trees planted by the tenement shade tree committee of the New York Association each bear a small enameled sign stating that "This tree is a gift to all children. Be its friend." And truly is the friend-

*Truly enormous quantities of practical and attractive pamphlets have been distributed by the United States Department of Agriculture, various state experiment stations, state school superintendents, and the *Youth's Companion*.

ship given without stint. The claim is made that not a tree given to a public school has been injured. A tree planted with much ceremony and named William McKinley has stood for two years in a small yard to which a thousand boys have daily access.

A writer in the *New York Tribune* reports the practical expression of child friendship for the trees in their midst:

Visiting an East Side block between First and Second avenues, to look after the condition of fifteen trees planted there last spring, a member of the Tenement Shale Tree Committee found a small boy digging vigorously around the roots of a thriving Carolina poplar, with a broken fork. He was not making much impression on the soil, but his chubby face was beaming with a sense of importance and public service rendered. "This is the Tree what I takes care of," he explained. "It's the biggest of 'em all, but it wouldn't be 'less I did this to it every day." . . . Of the fifteen trees planted in one block, where over 600 children made their homes, only two had died in the year, and neither of these from wilful injury or neglect. Every child in the neighborhood could give the individual history of any one of the trees, and considered each almost in the light of a personal friend. The experience in this one locality seemed indeed to well illustrate Jacob Riis's remark: "Let us have the trees, and the nearer the homes of the

poor the better; as they grow good citizenship will grow with them." . . . A little girl with a First Avenue address wrote: "You planted one in front of Jimmy Fagan's house, and he laughs at me cause I haven't any. Can't you give me one, too? I'll take more better care of it than Jimmy does."

The Chicago Tree Planting Society is probably the newest of its kind. Like the Kansas City Club which obtained a city forester backed by adequate legal regulation and then resolved itself into obscurity, the Chicago society proposes as its chief end the securing of a comprehensive, consistent, and authoritative policy through municipal regulation of all tree planting outside the fence lines on both sides of the streets.

A word of warning: The efficient service rendered by societies for tree planting does not contradict the suggestion of a better way. Except in rare instances the local improvement association or a joint committee representative of all interested organizations will furnish the most satisfactory agency for solving the tree problem of the community.

Individuals and clubs interested in tree planting are invited to correspond with THE CHAUTAUQUAN.

Trees in Cemeteries

By O. C. Simonds

Landscape Gardener.

BEFORE deciding what trees to plant let us consider first what a cemetery should be. It is a place to which we carry those we have loved and so it should be beautiful, quiet, and restful. The quietness will come from boundary plantations shutting out of view outside objects. A low growth also tends to produce a feeling of restfulness that comes from freedom from intrusion. Such a low growth may be the result of plant-

ing shrubs or of allowing the lower branches of trees to remain so that they hide one portion of the cemetery from another. The main question, however, is, "How shall the cemetery be made beautiful?" I believe that all who are not engaged in the manufacture of monuments would admit that trees do more than anything else to add to the attractive appearance of a cemetery. The attractiveness is due not alone to the trees themselves, but

also to the part they play in making artistic compositions in which the effect is due to varied growths both of trees and shrubs, open lawns, and, when the cemetery is especially favored, to placid lakes or running streams, and distant views of mountains, hills, valleys, and ocean.

The above ideals will help us to answer the question, "What shall we plant?" In the first place the trees which are used should be hardy. We want them to grow for many years and take pleasure in the soil, the climate, and their surroundings. As we want an artistic composition, the sky line must be carried to varying heights. There should be trees of all sizes and our list should include those attaining greatest height, among which would be found, oaks, elms, maples, cherries, poplars, willows, lindens, hackberries, and ash trees in almost all localities, and in certain favored situations, tulip trees, sassafras, pepperidge, cucumber trees, buckeyes, birches, catalpas, butternuts, hickories, walnuts, chestnuts, beeches, Kentucky coffee trees, larches, sweet gum, locusts, mulberries, and sycamores.

Among the first named, objection has sometimes been made to the white oak on account of its holding its leaves during winter, or dropping them gradually until the last are pushed off by the new growth of spring; but as I look out of my window and see the warmth which the brown leaves, still hanging to the oak trees, give to the winter landscape in early March, I think they are fully worth the little extra care which they may require. By the way, it is not necessary that the leaves should all be raked up the day they fall. The oak leaves contain much woody fiber so that they retain their shape long after they have fallen to the ground and make a most pleasing and interesting ground covering. I like to note the pointed lobes of the leaves of the red, pin, and scarlet oaks and the rounded lobes of the bur- and white oak leaves as they lie upon the ground in late autumn and early winter, some of them retaining, even at this late date, a pleasing, purplish tinge of color.

The covering which they form might be allowed to remain permanently in thick groups of shrubs and trees with advantage to the trees and to the appearance of the ground.

Probably the American elm would be voted our most graceful and beautiful tree. It is certainly worthy of the attention which it has received. It should be planted where the soil is suited to it and where there is abundant moisture, and should be given a large space in which to develop its spreading top. Our other elms and the species which have come to us from Europe are not as graceful in shape, but they have qualities which make them worthy of place in any cemetery large enough to contain all available trees.

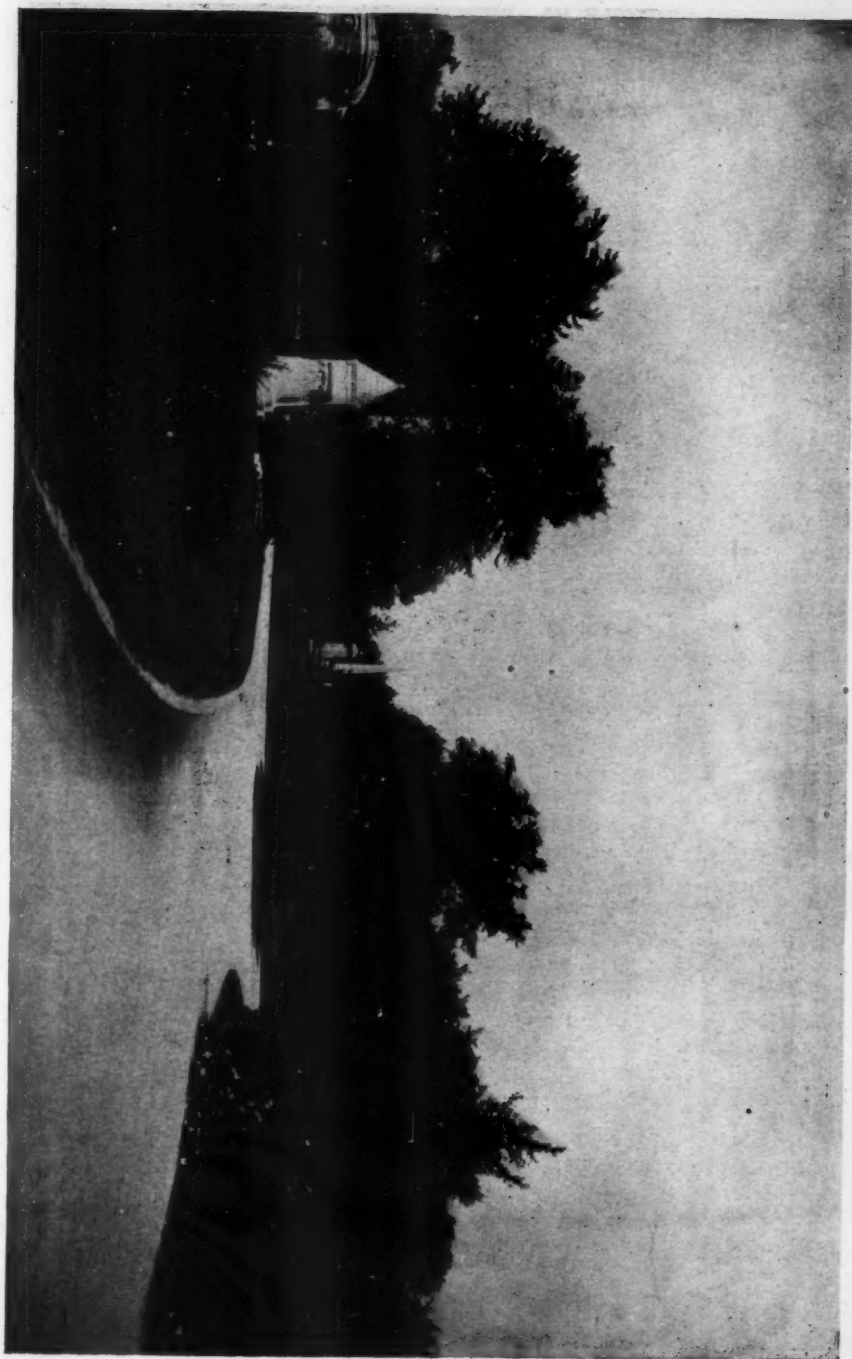
The maples are good trees, especially the sugar maple and the Norway maple. The latter is, perhaps, the most valuable ornamental tree that has come to us from Europe. It sends its leaves and blossoms out very early in the season and retains its foliage until November. It seems to delight in sandy soil. The soft, white, or silver maple is a tree of very rapid growth, but it is often condemned on account of the ease with which its branches are broken by severe winds. It is also very subject to the attacks of the maple scale, but, nevertheless, it is a beautiful tree and sometimes supplies just the foliage required to form a satisfactory picture. The maples, as all know, are most attractive for the reds and yellows which they assume in autumn. Ash trees are graceful in shape and are admirable in every way, with the exception that they are a little tardy in showing new growth in the spring and that they drop their leaves early in the fall.

The space allotted for this article will not permit a description of each desirable kind of tree, but there is scarcely any species for which a suitable position cannot be found in a good sized, rural cemetery. Thus far I have mentioned only deciduous trees, but where they will thrive, pines, spruces, cedars, and other evergreens should be planted in large



HEAVILY WOODED CEMETERY DRIVEWAY
The trees shut off the view of the monuments.

The park, lightly wooded, reveals the monuments.



A CEMETERY DRIVEWAY
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POND THICKLY BORDERED WITH TREES AND UNDERGROWTH



BEAUTIFUL EFFECTS CAN BE SECURED BY THE USE OF OPEN SPACES NEAR THE WATER

numbers. The smaller trees such as thorn apples, crab-apples, red-buds, dog-woods, horn beams, ironwoods, and plums should also be used.

In planting the cemetery try to remember beautiful things you have seen. Perhaps on some hillside you have noticed a large group of wild crab-apples in full bloom. If so, you will certainly want to have such a group in the landscape you are creating.* Again, an oak or an elm may stand by itself and spread its branches far out on either side; one an example of dignity, the other of gracefulness. They should be given a chance to develop in this way when planted in the city of the dead. Then there are groups of trees, sometimes all one kind, and sometimes made up of a number of species. These offer helpful suggestions; for the one who is called upon to design the planting of a cemetery should keep his eyes open whenever he rides through the country and then store his mind with the effects that are most pleasing.

It is sometimes said that certain trees should not be planted in a cemetery because they require so much room. This is a valid objection with regard to planting large trees on small lots, but it does not apply to the cemetery as a whole. For instance, evergreens which require a wide space near the ground can be planted along the boundary, or as a background for very large lots, or on steep slopes not adapted for burials. In making a design for such grounds as we are considering, advantage should be taken of the fact that some people wish large lots and others small. Large lots can usually be grouped near each other so as to give a chance for broad lawns and groups of trees and shrubs that require room. With such an arrangement the large lots not only help each other in appearance, but they allow the introduction of many species of trees and shrubs which would be out of place if the whole cemetery were divided into small lots. To one who has but a given amount of money to expend in making

his family burial place beautiful it might be well to suggest that a comparatively large lot with a tree and a few lilacs, roses, or honeysuckle bushes would give a far better effect than a very small area with a large or expensive monument. The most beautiful cemeteries are those which are most park-like. It might be well for those who are studying our subject to compare "Spring Grove" of Cincinnati with "Pere la Chaise" of Paris.

A mistake is sometimes made in cemeteries in the planting of a row of trees along each side of curved drives. Such rows are especially bad when they are made up of deciduous and evergreen trees alternating with each other. Avoid outlining individual lots with trees or shrubs. Remember that the ground should be treated as a whole so one part will not detract from the appearance of another.

It is as important to omit trees from certain areas as it is to plant them in others, and here again it is fortunate that people have different tastes so that some will desire to have lots that are all sunshine and others will delight in shady places. We need for the most beautiful pictures large areas of sky, and trees planted in rows or distributed uniformly over the ground prevent our seeing much of the sky or clouds from any one point of view. Trees please us most when they are left to grow in a natural way. The trimming should usually be confined to the removal of dead branches and the cutting away of such limbs as interfere with walking or driving. Occasionally it does no harm to allow the lower branches to sweep the ground, hang over the edge of a drive or dip into the surface of a lake.

In conclusion let us try to arrange the trees so that an artist will be glad to paint or photograph the views which their branches help to frame, and let us add to the stateliness and dignity of the trees the loveliness of shrubs, so that what is known as the final resting place shall be sought alike by birds and lovers of beautiful scenery.

New Trees Introduced by the Government

By Walter H. Evans

Of the United States Department of Agriculture, Washington, D. C.

AN explanation of the government's interest in new trees, or trees for new localities, and the methods of their introduction and dissemination has been asked for the readers of *THE CHAUTAUQUAN*. In this article the government and the Department of Agriculture as now constituted, as well as its predecessor, a small section of the Patent Office, are considered as synonymous, the work being practically all under that branch of the government. The Department of Agriculture practically owes its origin to a small appropriation that was set aside by the Commissioner of Patents for the purchase and distribution of new and valuable seeds and plants, and for the collection of agricultural statistics. In his report for 1854 Charles Mason, Commissioner of Patents, laid the foundation for plant introduction, saying:

A considerable share of the appropriation by Congress for agricultural purposes has been devoted to the procurement and distribution of seeds, plants, roots, and cuttings. . . . Measures have been taken to procure from every quarter of the globe such seeds, plants, roots, and cuttings as would admit of useful and successful cultivation in this country. . . . The advantage resulting from the introduction of a new commodity of average utility is of more value to the country than the acquisition of a new province.

During the early days of plant introduction the principal channels of information and the introduction of desirable plants were through our diplomatic and consular agents, missionaries, naval expeditions, and by occasional special agents, one of the first of whom was sent to Europe in 1854. Naval expeditions were the means of obtaining many new plants, that of Commodore Perry to Japan being notable in this respect. More recently the Department of Agriculture has maintained a corps of agricultural explorers who have made systematic surveys of

nearly every portion of the world and obtained specimens of all plants that seemed desirable or promising for this country. Naturally in the introduction work seeds are more easily and safely transported, and they have been most extensively secured; but the efforts have not stopped short of the shipment of living plants, cuttings, roots, etc., until there is hardly a plant of economic importance that has not at some time been introduced into the country. The rather limited tropical and subtropical area of the United States proper has deterred many attempts at the importation of purely tropical varieties, but the acquisition of Porto Rico, Hawaii, and the Philippine Islands has given us tropical lands and the department, in coöperation with the experiment stations in Porto Rico and Hawaii, is already searching the tropical world for valuable products. The extent to which the department is interested in the introduction of trees is shown from the last published inventory of introductions which covers the years 1900-1903. In this it is shown that of nearly 5,000 different lots of seeds and plants over one-third were of trees of various kinds.

The methods of distribution have varied since the beginning of the introductions. At first where small quantities were imported they were placed in the hands of responsible individuals in regions believed to be suitable to the plants. Later this method was superseded by a policy of either holding the plants at the department or sending them to some of the agricultural experiment stations or to a number of selected places where the plants are propagated under favorable conditions and the progeny distributed. This system has marked advantages in that it secures the proper treatment during the preliminary stages of the trial of the novelties, and it is a protection against the introduction

of injurious insects and fungus diseases. This line of work is now under the direction of the Bureau of Plant Industry of the Department of Agriculture, and acclimation or testing stations are maintained at Washington, D. C., Miami, Florida, and near Chico, California. Most of the material under observation at these places may be grouped under the headings of field products, vegetables, and orchard fruits.

The Bureau of Forestry of the department is engaged in the introduction of forest and other trees but it is not confined to foreign species only. Under the division of forest extension, trials are being made of different foreign and native trees for planting in different parts of the country. One of the most extensive projects of this kind is being made in the so-called Sandhill Region of Nebraska. Here in a region apparently worthless, experiments are being carried on to afforest the country. The preliminary experiments were so successful that a forest reserve of over 120,000 acres has been proclaimed in western Nebraska and extensive plantings are being made of Scotch, rock, and jack pines. This is the largest undertaking in this line but investigations are being carried on all over the land and under certain conditions the Bureau is prepared to give assistance and advice regarding the planting of forest trees, whether it be the planting of a woodlot or of a forest. In 1874 the department distributed a large quantity of seeds of eucalyptus and while this was not the first time this tree had been brought to this country it is quite possible that the extensive growing of these Australian trees in California and the adjacent southwestern portion of our country may be traced to this stimulus. The rapid growth and ability to withstand drought commend these trees to portions of the southwest that would probably otherwise be treeless.

A number of importations made by the government have attracted wide attention. Conspicuous among them and probably

the one which occupies the first rank in the introductions was the navel orange. This curiosity was noticed in Bahia, Brazil, by a lady traveler and reported to the Department of Agriculture. In 1870 a number of the trees were secured and propagated for a time, after which the progeny were distributed in Florida and California. One of the original trees is still growing in the orange house of the department. When distributed the trees were sent out under the name Bahia but for some reason the name Washington Navel became established and is the one by which it is now known. Many local names have been given it, such as Riverside Navel, etc., but it is quite possible that all can be traced to the stock sent out from Washington. This variety seems best adapted to conditions in California and it has become one of the most valuable fruits of that state. Other varieties of oranges, such as the mandarin and the tangarine, were imported from China and Japan through the department. In a similar manner the cultivation of the true citron has been made a commercial success in California, the original scions having been secured by one of the agricultural explorers in southern Europe about 1895.

A second class of fruits with which the government had much to do in the importation is the so-called Russian apples. The pioneers of Iowa, Minnesota, and Wisconsin were unable to grow the varieties of apples common in the more southern and eastern states and an attempt was made to get varieties from Russia where the conditions are somewhat similar. The first important importation was made in 1870 when over two hundred varieties were secured through the Imperial Botanic Gardens at St. Petersburg. They were grown for the time in the grounds of the department and distributed as scions throughout the northwest. Later other importations were made by private individuals. Many of the varieties proved of little value but a few such

as Alexander, Tetofsky, Duchess of Oldenburg, Red Astrachan, and Yellow Transparent, proved adapted to their surroundings and others have furnished seedlings of great promise. This series of introductions has extended apple growing far to the north and west.

The introduction and growing of named varieties of date palms in Arizona must be attributed to the Department of Agriculture acting in coöperation with the agricultural experiment station of that territory. The preliminary introduction of date palm suckers took place about 1889, and in 1899 and 1900 large importations of the best varieties of Algeria were secured by one of the agricultural explorers. These are growing in Arizona, and some have fruited, demonstrating the possibility of this new industry.

The growing of more than 100,000 pounds of Smyrna figs annually at Fresno, California, can be attributed very largely to the coöperation of the Department of Agriculture in introducing the Capri figs and the fertilizing insect needed for the proper production of this fruit.

When Commodore Perry, and some of the later expeditions to Japan, returned, they brought with them many grains, fruits, and plants. Among them was the "kaki" or Japanese persimmon. These were grown and distributed and for at least twenty years the department endeavored to introduce and popularize this attractive fruit before it was finally taken up by nurserymen. Now many leading importers offer them in their catalogues.

As early as 1854 the department undertook the introduction of the cork oak, a large number of acorns having been obtained from Europe and distributed throughout the southern states. This same tree has been tested in California and it gives promise of proving a success in some parts. Other European oaks have been introduced and they have proved valuable for certain purposes and regions. Recently a number of oaks from France were imported in an attempt to

develop truffle culture in this country.

For years the department attempted to stimulate the growing of camphor trees and large numbers have been sent to Florida and to California where the possibility of their growth has been demonstrated. The feasibility of the manufacture of the gum in competition with the foreign supplies has not been established, but as a shade and ornamental tree it surpasses anything now growing in the regions to which it is adapted.

In a similar way the attempts to introduce olives, figs, prunes, almonds, and other fruit and nut trees might be described but it would only be a repetition of what has already been said.

In addition to the importation of foreign varieties the department is giving attention to the breeding of new sorts to fill certain requirements. After the destructive freeze of 1895 in Florida, agents of the department began trying to produce a hardier variety of orange that would withstand the frost. By hybridizing the hardy Japanese deciduous orange, which has a bitter worthless fruit, and the common orange, a type has been obtained that has the hardiness of the one and also shows improved fruit characteristics. It is hoped by continuing this process and through careful selection to finally obtain a variety of orange with an edible fruit which will also be able to resist a freezing temperature for a considerable time. An improved pomelo, or grape fruit, called the tangelo has already been reported as having been produced by the department's plant breeders. Other instances might be given but they would only serve to extend the list which is already long.

In conclusion it may be said that the government, through the Department of Agriculture, is doing a great work in securing all kinds of new trees and demonstrating the possibilities of their cultivation. It cannot furnish everyone with trees for individual planting but it does try to show what to plant and where it may be grown.

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Fighting Forest Fires

By H. M. Suter

Editor of Forestry and Irrigation.

PARADOXICALLY speaking, the only way to fight a forest fire is to catch it before it becomes a forest fire. An ounce of prevention may be worth a pound of cure in some things but in forest fires it is practically all there is to it. Therefore, a treatment of the subject to be of value should suggest methods for obviating rather than checking fires.

Many states are passing stringent fire laws which provide for fighting timber blazes and for the pay of those engaged in fighting, but these laws consist principally of a number of "Don'ts" which concern such apparently trivial affairs as camp-fires, cigar-butts, burnt matches, brush piles and other things. Yet actual fire-fighting is effective at times, and there are recognized methods of combatting the flames after they are started, though, as indicated above, there is no comparison on the score of effectiveness between preventing and actual fighting.

To more fully understand this last point it is only necessary to review a few of the notable fires which have devastated the country in our recent history, and to bear in mind that, even without blazes that go down in history as "great," the annual loss to the United States from this source, in timber, buildings, and other property is at least \$50,000,000.

This figure, enormous as it seems, accounts only for the direct losses that may be reduced to terms of money values. It does not include the indirect and more costly ones as: the loss in young trees or the forests of the future; the destruction of the humus forest floor, formed through centuries and thereafter unfit for forest growth or any other purpose; the floods that come from the quick run-off of heavy rain from the bare slopes; the washing away of valuable properties and soils in the valleys; the loss of a constant water supply for cities, for power, or for irriga-

tion. Forest soil, spongy with root masses, holds moisture in suspension, giving it off constantly and gradually.

Then there are other losses that may be more or less definitely calculated between the direct and the far-reaching. These concern reproduction on burned areas, where the new growth is generally a scrub one of inferior species. There are also personal losses of occupation to lumbermen, guides, and to the tourist and hotel business.

Among the first of our historic forest fires was that of Miramichi, New Brunswick, in 1825. This started early one October afternoon and by midnight had entirely devastated a strip of country eighty miles long and twenty-five miles wide—a space as large as the State of Delaware, in which every living thing was killed, including the fish in the streams. The loss of life in the Peshigo, Wisconsin, fire of 1871 was the worst this country has experienced. In burned area it was a little larger than the Miramichi but at least 1,200 persons perished, and in connection with simultaneous and contiguous fires in Michigan the total was 2,000. Ten years later great forest fires swept Michigan, with an aggregate burned area of almost 2,000 square miles, destroying more than \$2,000,000 worth of property exclusive of the timber itself, rendering 5,000 persons homeless and destitute and killing no less than 400. The great Hinckley fire, which raged in Minnesota in 1894 was not so large in area burned but it resulted in the loss of 500 lives and \$25,000,000 in property. In 1902 eighteen lives and \$12,000,000 were lost in fires in Oregon and Washington, and the next year the East had a severe visitation, from Maine to Virginia, which had its worst examples in the Adirondack regions of New York, where there was a



AN ADIRONDACK FIRE

loss of no less than \$4,000,000 over a burned area aggregating 1,000 square miles.

All of these were fires against which no amount of fighting could succeed, and the efforts of man prevailed only in isolated areas and were as naught in the whole tale of destruction. In all the foregoing cases the fires stopped on reaching insurmountable natural barriers, such as large bodies of water, unforested areas, or were quenched by heavy and timely rains.

The fury of a forest fire is indescribable, especially in soft-wood or coniferous forests. Here the flames sweep through, making a roaring wall of blaze that reaches from the ground, carpeted with inflammable material, to the topmost branches where resinous sap snaps and crackles fiercely, throwing blazing particles to ignite other trees at a consider-

able distance. In addition a high wind blows, in many cases generated by the fire itself, the heated air rising and causing an inrush of colder air from adjacent areas that acts like the draft of a furnace. Against this combination of ground and crown fire nothing prevails. Animals flee before it or are roasted to death. During the fires in Washington and Oregon in 1902 lakes were found packed solid with putrefying and partly roasted bodies of bear, deer, panther, and other animals, fearless of each other in the frenzy that brought them together to perish through drowning, heat, or suffocation. In these same fires a picnic party of nine persons, with team and wagon, was cut off by flames near Mt. St. Helen, and all that was found later to prove the tragedy were the irons of the wagon, the carcasses of two horses, and vestiges of the remains of human beings, the buttons

Fighting Forest Fires

of the clothing the only evidence left to show how they fell. The horses had been cut loose in a vain mercy that sought to give them a chance to shift for themselves. Near the tires of the wagon were the remains of the women of the party, and the position of the men



FOREST FIRE NEAR PASADENA, CALIFORNIA,
TWO HOURS AFTER IT STARTED

at various points from the central group of the tragedy showed that they had tried to make some sort of a fight. The task was as hopeless as making a living space in the midst of a blast furnace.

But fires can sometimes be fought. There was expended by the state and private individuals during the 1903 Adirondack fires the sum of \$175,000 for fire fighting, and it was not wasted since property far in excess of that amount was saved from imminent danger. Leaving out the question of organizing fighting forces, which must be a matter of local arrangement and influenced by circumstances, there are a few general truths to be kept in mind. Where fires are exten-

sive it is wise to remember that the most effective fighting can be done when the flames are least violent. At sunrise and sunset the wind generally dies down, and aggressive efforts should be made at these periods. If the blaze has any of the elements of incipency about it the only course is to keep at it until every spark is dead. Surface fires such as run through the brush and debris of hardwood forests may be checked by raking away the litter on the forest floor for a space of several feet, making use of those natural defenses that are at hand, such as roads, paths, or streams. When water is obtainable the bare tract should be thoroughly wet down. Watchers should be at hand to see that sparks do not carry the flames to the defended side. Shovel-fuls of moist earth or sand are of value. Some fires may be threshed out with heavy green branches, and there is nothing better than a wet gunny-sack. Where feasible a few furrows with a plow should be turned in the path of a fire, and in some localities a deep trench may be necessary to get through the tinder-like duff down to the mineral soil. When other methods fail, back firing may be resorted to, but this is dangerous unless the operation is carefully handled. This method is of use when there are plenty of men to watch, and when there are crown fires, or fires of such heat that man may not approach them. A trench or path is prepared as a line of defense, the fire applied by the fighters along the side of the approaching fire but not on the near or defended side of the line. The set fire travels toward the forest fire, destroying what the latter would feed on, and making a broad area over which but few sparks or burning brands could fly. In large fires this is the only effective method, but is liable to get the best of its starters and simply add to the danger.

There are good reasons why the world does not hear as much of the heroes of forest fires as it does of those of city conflagrations. In many cases neither the

hero nor anyone else is left to tell the tale. Also the deeds are done out of the sight of many men. Men fight side by side in the midst of danger for days at a time and suffer discomfort, exhaustion and pain. All alike volunteer for the work and when it is over return to their usual vocation on an equality of heroism—if they think of the matter at all—or on an even basis of having done a duty. Perhaps the best account of a forest fire, with its deeds of heroism or despair, occurs in "The Prize to the Hardy," by Alice Winter, a novel only recently published.

In the Adirondack fires of 1903, a small area known as South Meadow, was entirely surrounded by 16,000 acres of fiercely blazing woodland. It was a natural glade, a third of a mile long and less broad, where the grass was lush and green, and the forest did not encroach. A little stream ran through it and in its midst stood a small house in which a man, his wife, and three small children had their home. At the edge of the woods was a small shingle mill which employed three or four men, and supported their families in nearby cottages. When the flames were at their worst the men sent

got a half-mile away, could proceed no farther, and got back almost by a miracle, the flames nearly out-racing him to the clearing. They leaped the meadow with a roar and attacked the woods on the other side. The women and children had to lie in the water from early afternoon until



A BURNED FOREST IN LEWIS COUNTY, WASHINGTON

Note the destruction in the foreground. late in the morning of the next day. The mill and building were on fire six times but were eventually saved, and the little community came out unscathed to the great wonder of the countryside.

At Loon Lake the men fought the fires for forty-three days without respite, though they tried to confine their efforts to the lull times. But it was a fight of self-defense, and if rains had not come all would have been lost. As it was many fainted from exhaustion, literally on the firing line.

The Hinckley fire furnished more heroism than any other, principally because there were more persons involved. J. M. Root was engineer of an accommodation train that got almost to Hinckley. There he was unable to proceed farther because the track was burned out. He held his train until the track was burning behind him, and did all he could to help those who tried to get aboard in the only hope of salvation. The coaches were afire when the train was forced to back out, and some persons were burned to death in the



FOREST FIRE ON TENSLEEP CREEK, WYOMING

their wives and children, wrapped in blankets to lie in the stream. The men tried to save the property. One was despatched on horseback to summon aid. He

Fighting Forest Fires



FIGHTING A FOREST FIRE

train itself. Others who were safely on board threw themselves into the roaring furnace of the woods on either side, and perished before the eyes of fellow passengers who implored the train officials to go. The conductor, named Sullivan, held the signal till the last possible second, though in his car he saw a frenzied man kiss his wife goodbye and then hurl himself to death through the jagged opening of a window where the heat had broken the glass. But he also saw forms running from the smoke and flame, many of them to fall dead at the side of the track, while others were able, helped by the train hands, to get aboard. One young girl, nude from having had the clothes burned from her body, was caught by the engineer as she fell near his cab, and was passed back to the baggage car where she was cared for. When the train started it was amid the shrieks and groans of those left behind. Its destination was a lake a

few miles distant, whither it backed through a veritable hell, over fire-twisted rails and burning and tottering trestles. The engineer had the clothes and hair burned from his body, and his flesh seared in spite of the efforts of the fireman to keep him drenched with water. Through one stretch the latter had to immerse himself in the water tank of the tender in order to save his own life for further efforts. The lake itself when reached was soon filled with the occupants of the train, who plastered each other with wet mud to keep off the intolerable heat and flames that surged over them. Root, the engineer, after he saw his freight of lives was safe, fell fainting at his post, horribly burned, and cut by broken glass that had burst with the heat. He was carried into the lake and later recovered. A few days later the railway officials gave out that Sullivan, in charge of the train, had become insane from the strain he

had gone through and from the memory of the scenes of horrible death he had witnessed. Thomas Dunne, a telegraph operator, died at his instrument trying to get news to and succor from the outside world. Another operator named Bullis saved 450 women and children, for when the fire first threatened, an engine in the round house was coupled to all the freight cars available and despatched to Duluth with the women and children who could be prevailed upon to go. Bullis had been driven from his office when his train left, but he had the bravery and presence of mind to make his way back into the burning building and telegraph a clear track ahead for the special from Hinckley thus averting the disaster of a collision. The train was about to stop at a burning trestle near town when a flagman named Jessmer gave the signal to speed ahead, and the train got across the swaying structure before it fell. His was a case of quick thinking at a time when minutes meant eternities, and by his action he lost the chance to go out on the train which he speeded past himself. Engineer Betz, Fireman Barry, and Conductor Campbell, were no less brave than Root, and they succeeded in carrying to safety women and children hysterical at the thought of the men-folk left behind, a sacrifice for the safety of their loved ones.

A small boy was found after four days at the bottom of a well. His father had lowered him and gone after the rest of the family. A heap of charred bodies not five feet from the shaft showed why the boy had waited in vain while the "darkness and hotness" went over him. A fourteen-year-old boy from West Duluth dragged two smaller children of the family whom he was visiting, along the railroad track to safety, while grown men with only themselves to care for dropped at his side. A lover saved his sick betrothed by carrying her a half-mile after his feet had been burned to stumps. A mother had her clothes burned from her body and all the hair from her head, while

with both arms she held her nursing child to her breast in order that it might not be suffocated by the smoke. And these instances of heroism were but a few of the many.

As the capacity for great deeds is said to be measured by the ability to look after small ones, so it is incumbent on everyone to learn or teach the lesson of prevention of forest fires. The terrible Hinckley fire would not have occurred had a few citizens put out the incipient blazes which smouldered for days near the town before the wind fanned them to uncontrollable fury.

A majority of fires are set by railway locomotives. Self-interest and legislation alike should dictate that all locomotives be fitted with spark-arresters. No fires occur that are not due to human agencies. There is no authentic instance of a fire



REMAINS OF REDWOOD TREES AFTER FOREST FIRE

started by lightning. Instances are known of the sun's rays so focussed through a bit of curved glass as to start a blaze. This is not so improbable as it sounds; two of the great Adirondack fires are said

to have started this way, and it is a known fact that old settlers on the prairies decried the careless leaving of pieces of broken bottles. Two boys once set a fire to find a cow-bell that cost twenty cents. They did not find the bell but burned up the cow, its barn, the home of its owner, and other property amounting to \$20,000. Fire fighters hired to extinguish blazes, have, in their cupidity, set fires for the sake of putting them out, because the fire-fighting wages were greater than they could earn at usual toil.

In brief, it lies largely with the individual as to whether the forests of the United States are to suffer continued de-

vastation. Strollers in the woods should always be careful; they should put out small fires and report big ones; teachers and parents should give children an idea of the value of the woods, and endeavor to overcome the wantonness of boys who set fires to see them burn, though this wantonness has been shown by children of a larger growth.

When all take a vital interest in this matter there will be some reduction of disaster, and the lumber industry, fourth in the United States, will not suffer from fires an annual loss greater than one-twelfth of the total annual value of all its products.

An Experiment in Road Beautifying

By S. B. McManus

MARSH Brook Farm is the actual name of our place, and not a fanciful one, as its prettiness might suggest; and, for a wonder, the name is appropriate. Marsh Brook has its rise a few miles above, in one of the many large, tall-grassed, wet meadows peculiar to southern Michigan. It is a laughing gossipy little stream, four or five feet wide, when it reaches us, even in time of drought. It runs through the whole length of the farm, at first making its way into a timothy and blue joint meadow on the east, then going fairly straight through the orchard, curving and jolting itself through a truck patch, under the fence into the back barnyard, out again, making a watering place in a field that would otherwise have been waterless, into a little garden where we have planted some choice fruit trees, made an asparagus bed, and sent a climbing rose and grapevine up the west end of the barn, then into a big, wasteful dooryard, then, diving under another fence, beneath an ugly wooden bridge—once ugly, I mean—

into a pasture, a bit of wood, another pasture—the river, then lost. There are so many pretty possibilities in a little stream of water that I am particular in describing this.

Our experiment—our chiefest experiment, for we are a venturesome family—almost audacious sometimes, I might say, and abounding in unexpected departures—was to beautify the road as far as it ran through our land. It zigzagged through the farm, cutting it nearly evenly in two.

The idea of making our stretch of road pretty and attractive was first suggested, I think, by reading Mrs. Ewing's "Mary's Garden," and the placing of a red-painted bench outside of the yard fence in the shade of a couple of walnut trees, near the well, for foot travelers to sit upon and rest. It looked neighborly and thoughtful, and gave a bit of cheerful color from the front door of the house. Then it was easy to go a step farther and add some more prettiness to the intended hospitality or courtesy. There were two hollow bass-

wood logs which my mother had used for hens' nests. The bark was still on them. We ejected the poultry, and sunk the logs in the ground near the bench, leaving about a foot and a half out, filled them with rich dirt, planted a scarlet geranium in the center of each and wild Kenilworth ivy around the edges. We carried to the water's edge abandoned stew kettles with bales, cans, old baskets, almost anything that would hold dirt—painted green, red, yellow—carefully filled them, without in the least disturbing the roots of the ivy, and immediately we had a number of pretty baskets, three or four of which we hung from branches of the walnuts near the roadside bench. Our returns for the little work expended came quickly. In fact, they were there almost as soon as we were. The spot was actually pretty from the start.

I want to say right here what should have been said at the outset, that we had not a dollar to spend in our road decoration—willingness, work, and ingenuity represented our only capital. "Our," by the way, means my wife Janet, my daughter George, and my mother, as an advisory and encouraging committee.

Our next step was thirty-two feet in length, that is, we crossed the road. This move was debated and required some little courage. Our neighbors' eyes would be upon us. They would scent conviction. It looked like something premeditated and intended, and would probably lead to criticism, and, more than likely, ridicule. Nevertheless, we crossed the road and began operations. There was a pile of hardwoods near by, left from the underpinning of the house. A few jagged conglomerates or pudding stones were among them, interesting in themselves, showing as they did a variety of colored pebbles with their matrix of gray iron. Of these we made as artistic a heap as we could, filling in with soil, leaving places large and small unoccupied by the stone. Around and on the top of this artistic creation we planted the Kansas or prickly pear.

With this masterly venture, the intention was born to make the whole roadway beautiful as far as we were able to do so. After the first rain, which settled the soil about the scanty roots of the plants, they began a quiet and splendid growth, and by midsummer (we began our work in May) it had put out 120 blossoms—queenly yellow ones—each succeeded by the fruit, which was nearly as pretty.

This effort was the beginning of our deep-rooted convictions regarding the beautifying of our roadway. Our first deliberate move was toward the bridge. This structure was obtrusively new there and almost criminally ugly and unsightly, so ugly, indeed, that I fancied the water seemed to scowl as it scurried or sulked under it—as the case might be in flood or drought—coming from beneath it with an unmistakable feeling of relief and hurrying in reckless disregard of manners, as if afraid of being called upon to repeat the experience. The abutments were of roughly hewn timbers of varying lengths, projecting here and receding there, and, whether doing one or the other, always untidy and unsightly. The planks of the floor were as irregular as the foundation structure, and the low, rough, railings at the side were masterpieces of bad carpentry. It became our determination to make the best of it, to make it beautiful, at least respectable, if possible.

The rank growth of needles, foxtails, and docks was first made way with. A clump of wild rose bushes growing at one side trimmed up and the dead stalks removed. A prematurely old young elm sapling bent over and untidy with straw and hay caught from loaded wagons, was cleaned, straightened up, and shorn of some mischievous branches, and tied to the bridge in an upright position. The brook itself was cleared of the "flood trash," and, with this removed, it washed for itself a deeper and prettier channel. Unsightly weeds were all dug out or mowed off. Then the dirt was shoveled from the flooring planks, the patent-medi-

An Experiment in Road Beautifying

cine criminalities and atrocities knocked loose from the railing and sent adrift down the tickled stream, never again to offend any one by their unsightly presence. Then came the crowning act of our endeavor, in the whitewashing of the bridge, after which performance, in contrast with its former appearance, it looked almost riotously, immorally handsome. If the whitewashing was the crowning act in this comedy, or rather tragedy of the bridge, it was succeeded by something akin to inspiration. At two corners of the bridge were bunches of wild clematis, the slender, graceful vines loaded with lace-like blossoms. When the whitewash was thoroughly dry we lifted them as gently as possible and festooned them over the railings of the bridge, tacking them securely with leather.

Our unsightly bridge straightway became famous—our ugly duckling a swan. It was the prettiest, most attractive thing for almost miles around. Very reluctant and reticent people openly admired it, and many who loved beautiful things and were glad to acknowledge it, thanked us many times for what we had done.

But this was not all. A woven picket fence which stretched over the brook and was just above the bridge, was made exquisitely pretty with a wild grapevine trained across it from one side, meeting midway a clematis vine from the other side, and, joining forces, made a cascade of dripping luxuriant green. Oh, the restful, refreshing beauty of that one panel of fence! It was and is a picture—a poem—anything that makes one glad and feel like thinking good things.

A once very pretty bank three or four rods in length had been made not only unsightly, but almost hideous, by a thrifty

roadmaster taking out gravel for building and repairs. The damage had never been repaired, only scant vegetation would grow upon it, and nothing thrive except sand burrs and horse sorrel. It was conspicuously ugly. We mixed a few loads of well-rotted manure with the gravel, leveled it down with a garden rake, planted three dozen cedars from the woods across the river, carefully concealing any attempt to put them out regularly—groups here, and ones, twos, and threes there, any way, to convey the idea of naturalness. Then we added three or four North Carolina poplars—the only expense we have so far put upon the road—sunk tufts of Iceland moss in the ground, and sowed the whole with grass seed, morning-glories, and wild cucumber vines. This has been our most laborious and trying experiment, and so far least satisfactory as to results. Nearly all of the trees lived, and in a few years more will make a handsome showing.

A notable and important step in our decorative and beautifying scheme was the converting of the unsightly angles of the road into bends more or less graceful. The acute angles were made into curves, some too abrupt, albeit to completely conform to the best lines of beauty. This was not altogether an easy matter when dealing with the stake-and-rider fence, on which we made our experiment, as it did not lend itself altogether willingly to the undertaking. But in the fulness of time, when necessity demanded a constructing material, and pickets woven in place with wire were substituted, we got some beautiful results in a number of really artistic bends and crooks, which our neighbors never found fault with, and but mildly ridiculed.

Landscape Value of Some of Our Common Trees

By John Craig

Department of Horticulture, Cornell University.

IT is trite and conventional to call attention to the extraordinary variety of form, of color, and of texture found in the common trees of the wayside and wood lot. Yet how many people fail to note the fine, or even the gross differences in color and other values of these decorative agents of the landscape! It is Mrs. Schuyler Van Rensselaer who most pointedly draws attention to these features in her charming work entitled "Art Out of Doors," and she it is who classifies the qualities of trees and places them under the three heads noted above—form, color, texture. The remarks contained in this brief article are intended to refer only to our common trees and do not include the scores of foreign types, nor yet the varieties and sorts being constantly introduced by nurserymen.

Oliver Wendell Holmes well says that "it will not do to be exclusive in our tastes about trees. There is hardly one of them which has not peculiar beauties in some fitting place for it." And I always feel that however one may qualify comparative statements, injustice is done some members of the landscape inhabitants in a brief glance at their relative beauties and values.

In considering values, we may take up the subject from the three standpoints noted above. First, *form*. Here we have infinite variety and striking divergences. Note the sharp contrasts between the billowy outlines of the American elm and the shell-bark hickory. The differences are more striking in the winter season than when clothed with foliage. In the first, curved lines predominate; in the other, abrupt angles are most apparent. The one, willowy, bending; the other stiff, unyielding. The one, graceful; the other picturesque; and both needed to give variety to the landscape.

Contrast again the profile of a Lombardy poplar with that of a Norway maple. The former penetrates, we may say pierces, the sky line. The latter furnishes massiveness, solidity, to the horizon when viewed in the distance. The one a slender exclamation point, as Bailey puts it; the other, typical of exuberant, healthy, and vegetative activity.

The form of the tree is undoubtedly its most prominent characteristic. Perhaps the form, more than any other quality, suggests its appropriate place in the landscape. The spire-like growth of the fastigate poplars and the pyramidal growth of the larch assign them to backgrounds—to positions on the horizon where they may break up undue monotony and sameness.

There are certain trees which Nature has made more or less formal in outline, and these trees are particularly suitable for situations where formality reigns of necessity. Of these we may mention the ginkgo, a magnificent avenue tree, the larch and the Norway spruce, all of which are sufficiently formal in outline to admit of close association with the architectural school or type of landscape gardening. On the other hand, the flowing lines of the elm, maple, willow, and locust design them more for association with the natural school.

Color: While we talk much about color, write voluminously about the glorious autumn effects and the changing tints of the trees as they put on their summer garments, yet color schemes are rarely worked out in parks and lawns. In other words, while the variety of coloring of trees is recognized by all, but rarely is it taken into account in planting. And yet, how few discordant effects are to be noted either in artificial or in natural groupings! I suppose the lack of painful combinations

is to be ascribed to the predominance of soft monotonies in the color of trees. There is usually enough of the intermediate tones in a tree itself, to assist in the blending of its own bright colors with that of its neighbor. For vivid autumn effects, maples and oaks stand preëminent. Yet among maples and among oaks, there are great contrasts. The gold of the Norway differs widely from the crimson and red of the sugar maple, and so it is with the oaks. There is a long stretch between the dull bronzes of the chestnut and the burr-oak and the flaming brilliancy of the scarlet.

I sometimes think that soft tones among trees are not sufficiently appreciated and that this thought may receive corroboration and support, one need but indulge in a drive through the woods in the autumn where the soft yellows of the poplars, the birches, and the ashes so effectually heighten the mellow haze of autumn. In spring, again, the beech is peculiarly beautiful during its budding season. Nor should we forget the warming influence of the golden willow upon the landscape in winter and early spring.

Texture: There is just as much variety in the texture of the trees as is to be found in form and color. Under texture, we refer to the coarseness or density as contrasted with the quality of lightness, of elegance, and lace-like airiness. There are certain trees which impart a feeling of somberness; and yet, to me, the weeping

willow is not one of these, although it is often spoken of as being suggestive of gloom. On the contrary, it suggests playful grace. Its place is not more appropriately by stagnant pools than by laughing waters.

To get a notion of the meaning of texture, you may contrast on a sunny day, if you like, the shadows beneath a Norway maple and a honey locust; a catalpa with a Kentucky coffee tree; a tulip with a weeping birch, the larch with the Norway spruce. The density of the shadow suggests the quality of the texture, and the texture is to be carefully considered in connection with the place and purpose of the tree in the park or lawn.

It is impracticable to arbitrarily classify trees upon the basis of their special uses, because much depends upon the skill of the artist. One may secure a charming effect by the use of certain material, while another may fail deplorably. We may say, however, that trees having good healthy-growing habits and tending toward the rigid or formal in outline, are best for street and city planting. As examples of these may be cited the sycamore, the ginkgo, the pin oak. Others with freer outlines, and therefore better adapted for shade, should be selected for parks and spacious grounds. Among these are elms (and there is nothing finer than our American elm), the maples (the native is superior to the Norway), the honey locust, American linden, and the like.





FORESTRY (LOG) BUILDING AT THE LEWIS AND CLARK EXPOSITION

Forestry at the Portland Exposition

By W. E. Brindley

IN erecting the Forestry Building at the Lewis and Clark Exposition, which is to open at Portland, Oregon, June 1, the managers of the Western World's Fair have scored a double triumph; they have constructed a building which is absolutely unique in the history of exposition building, and which is in itself an excellent exhibit of one of the greatest resources of the country which the fair is designed to exploit.

The building is a log palace, the second largest structure of logs ever built. It has already attracted more attention than any of the other Exposition structures, and visitors from the east will find it the most interesting thing about an Exposition in which nearly everything will be interesting.

The mammoth structure, American in design, American in construction, is distinctly northwestern in the materials of which it is constructed. Nowhere else in the world could one find many fir trees six feet in diameter for a length of over

fifty feet, and one fir tree as great in thickness and length as a railroad coach.

The building has an environment admirably suited to its nature. On one side stand the other Exposition palaces, a long row of stately structures gleaming in the ivory whiteness of their coats of staff. On the other side is a little stretch of woodland, then a beautiful little canyon, and beyond, the foothills of the Cascades, their sides covered with native fir trees that have stood there since the days of Lewis and Clark. From the galleries of the Forestry Building the view on one side embraces the main Exposition picture, with all the life and motion, and color, and noise and gaudy display that must characterize a world's fair, and on the other the contrast of natural woodland, quiet, sombre, serene, with the valley which nature's hand has chiseled, and the foothills which no man could ever build.

The forestry building is 205 feet long by 108 feet wide, thus occupying half the space of a Portland city block. Two



VIEW IN CENTENNIAL PARK, LEWIS AND CLARK EXPOSITION

miles of five and six foot fir logs, eight miles of poles, and tons of stakes and cedar shingles were used in its construction. One of the monster logs, no larger than many others, was found to weigh 32 tons.

There is an old song that runs:

"For it's fourteen miles from Schenectady to Troy,
Remember that when you've walked it, my boy," etc.

If one of the base logs in the Forestry Building, 52 feet long and six feet in diameter, were cut into standard size flooring boards one inch thick and three wide, the boy in the song could walk all the dreary fourteen miles on these flooring boards placed end to end.

To figure it another way: One of the logs contains enough lumber with which to build a one-story cottage, 40x40 feet in size, with a fence around it, and board walk to lead up to it, and there would still be enough wood left to kindle the fire in the grate for many months.

While in a general way the building

looks like a log house, the details of the structure distinguish it and give it a stateliness of appearance in keeping with the general architectural excellence of the Exposition structures. The upper half of the building is constructed of cedar bark shingles, placed eighteen inches to the weather. The ends of the structure are gabled, and two balconies, set into the ends, one above the other, add to the architectural appearance. The entrances on the long sides are between tree pillars set up to form a colonnade. Primitive methods of construction have been used as far as possible. There is no carpentry work about the building, the logs being framed together with tree-nails and old-fashioned wooden pins. An overhanging roof adds much to the appearance of the structure.

The interior of the building as well as the exterior, is in itself an exhibit of the forest wealth of the Pacific Northwest. As one enters by the main entrance he sees before him a veritable forest of fir trees, as

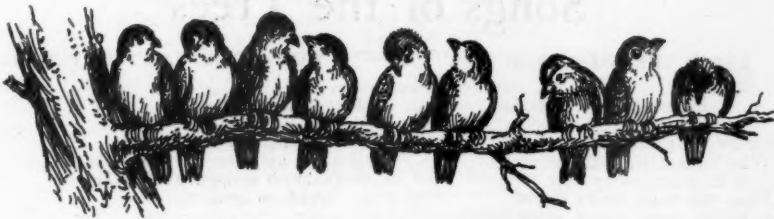
thick as a man is tall, and towering to the roof fifty feet above. The timbers, with the bark still on, like the logs used in the construction of the sides, stand straight and sturdy as they did in the primeval forests where they were cut. There are fifty-two of these woodland giants which support the roof, and as many more, not so tall, which support balconies which run around the entire building. Rustic stairways give access to the balconies, and rustic railings serve to protect the visitors from danger of falling to the floor below.

The forest giants used in constructing the building were felled in the Columbia river forests, about seventy-five miles from Portland. After being shorn of their branches they were placed in cradles to guard against the bark being torn off, and dragged to the river bank, where they were formed into rafts and floated down the river. From the Columbia, the logs were guided into the Willamette, and from the latter stream they were floated at high water over the narrow strip of

land that separates the river from Guild's Lake, the natural "grand basin" of the Exposition.

From the lake the trees were raised to the site of the Forestry Building by means of a giant skidway more than a quarter of a mile long. A mammoth crane, operated by means of a specially constructed forty horse-power donkey engine, was used to set the logs in place. Twenty thousand feet of wire cable were necessary for the hoisting and guys.

While the building will exemplify in its construction the forest wealth of Oregon, its contents will show the progress of the saw-mill industry in the Pacific Northwest. In the balconies and in other parts of the buildings will be displayed a complete exhibit of finished timber products, together with samples of all the woods grown in the Pacific Northwest. The exhibit, taken in connection with the structure which will house it, will convince people of the greatness of the Pacific Northwest's timber resources as nothing else could.





LIQUID AMBER (SWEET GUM TREE)
Photo by Mrs. Seavey.



SIBERIAN JUNIPER (NEEDLE EVERGREEN)
Photo by Mrs. Seavey.

Songs of the Trees

UNDER THE GREENWOOD TREE

From "As You Like It."

Under the greenwood tree
Who loves to lie with me,
And tune his merry note
Unto the sweet bird's throat,
Come hither, come hither, come hither:
Here shall he see
No enemy
But winter and rough weather.

Who doth ambition shun,
And loves to live i' the sun,
Seeking the food he eats,
And pleased with what he gets,
Come hither, come hither, come hither:
Here shall he see
No enemy
But winter and rough weather.

—Shakespeare.

FAIR PLEDGES OF A FRUITFUL TREE

Fair pledges of a fruitful tree,
Why do ye fall so fast?
Your date is not so past
But you may stay yet here awhile
To blush and gently smile,
And go at last.

What! were ye born to be
An hour or half's delight,
And so to bid good night?
'Tis pity Nature brought ye forth,
Merely to show your worth,
And lose you quite.

But you are lovely leaves, where we
May read how soon things have
Their end, though ne'er so brave;
And after they have shown their pride
Like you awhile, they glide
Into the grave.

—Robert Herrick.

THE BRAVE OLD OAK

A song to the oak, the brave old oak,
 Who hath ruled in the greenwood long;
 Here's health and renown to his broad green crown,
 And his fifty arms so strong.
 There's fear in his frown when the sun goes down,
 And the fire in the west fades out;
 And he showeth his might on a wild midnight,
 When the storms through his branches shout.

Then here's to the oak, the brave old oak,
 Who stands in his pride alone;
 And still flourish he, a hale green tree,
 When a hundred years are gone!

In the days of old, when the spring with cold
 Had brightened his branches gray,
 Through the grass at his feet crept maidens sweet,
 To gather the dew of May.
 And on that day to the rebeck gay
 They frolicked with the lovesome swains;
 They are gone, they are dead, in the churchyard laid,
 But the tree it still remains.

Then here's, etc.

He saw the rare times when the Christmas chimes
 Was a merry sound to hear,
 When the squire's wide hall and the cottage small
 Were filled with good English cheer.
 Now gold hath the sway we all obey,
 And a ruthless king is he;
 But he never shall send our ancient friend
 To be tossed on the stormy sea.

Then here's, etc.

—H. F. Chorley.

UNDER THE CEDARCROFT CHESTNUT

Trim set in ancient sward, his manful bole
 Upbore his frontage largely toward the sky.
 We could not dream but that he had a soul:
 What virtue breathed from out his bravery!

We gazed o'erhead: far down our deepening eyes
 Rained glammers from his green midsummer mass.
 The worth and sum of all his centuries
 Suffused his mighty shadow on the grass.

A Presence large, a grave and steadfast Form
 Amid the leaves' light play and fantasy,
 A calmness conquered out of many a storm,
 A Manhood mastered by a chestnut-tree!

Then while his monarch fingers downward held
 The rugged burrs wherewith his state was rife,
 A voice of large authoritative Eld
 Seemed uttering quickly parables of life:

How Life in truth was sharply set with ills;
 A kernel cased in quarrels; yea, a sphere
 Of stings, and hedge-hog-round of mortal quills:
 How most men itched to eat too soon i' the year,

And took but wounds and worries for their pains,
 Whereas the wise withheld their patient hands,
 Nor plucked green pleasures till the sun and rains
 And seasonable ripenings burst all bands
 And opened wide the liberal bands of life.

There, O my Friend, beneath the chestnut bough,
 Gazing on thee immersed in modern strife,
 I framed a prayer of fervency—that thou,

In soul and stature larger than thy kind,
 Still more to this strong Form might'st liken thee,
 Till thy whole Self in every fibre find
 The tranquil lordship of thy chestnut tree.

—Sidney Lanier.

The Catalpa Speciosa

An Interview with John P. Brown*

Editor of *Arbiculture*, Connersville, Ind.

I N pursuing my researches into the life and habits of the *Catalpa speciosa* I have traveled three hundred thousand miles, traversing every state, save one, as well as Canada, Mexico and Central America, and have found and recorded many thousands of catalpa trees which have been transported from their homes in the Wabash Valley, in order to determine the extent of territory to which the trees were adapted, the soils suited to their growth, and their hardiness in rigorous climates, as well as their behavior under tropic conditions. The result has been that apparently there is no limit, yet found, between latitudes 45 degrees north and 40 degrees south of the equator.

There has been no assistance rendered in all this work by any government or state, the expenses having been met by my own labors as civil engineer and other employment, until in 1897 the organization of the International Society of Arbiculture was effected, since which time the society has steadily grown, and has for most part borne the expense. Ex-President Benjamin Harrison and Governor James A. Mount, of Indiana, General Lew Wallace and many eminent citizens of this and other lands have been members of this society. Hon. J. Sterling Morton, of Nebraska, was our first President, continuing as such to the time of his death.

*Mr. John P. Brown, editor of *Arbiculture*, is by profession a civil engineer. His work on railroads and government surveys has taken him all over this continent and enabled him to pursue his favorite study, that of American forests. In 1875 he became interested in the rapid growth and the varied possibilities of the *Catalpa speciosa*, a tree whose peculiar value was recognized and called to public attention by General William Henry Harrison as long ago as 1818. For the last thirty years Mr. Brown has devoted himself to the study of the catalpa and conducted a successful campaign of education through which the true variety of catalpa has been distinguished and remarkably extensive plantings have been fostered.—Editor.

General William J. Palmer, of Colorado, succeeded Mr. Morton, and is still President of the Society. No other person has done so much to advance the interests of the Society, by moral encouragement and financial support, as has General Palmer, who as a railway President has enabled the Society to reach and interest the great railways of America in forest planting and management.

At the Louisiana Purchase Exposition, the Society made an exhibit of the catalpa which attracted the attention and secured the admiration of the world, and for which they were awarded the grand prize. Even the residents of the region of which the catalpa was indigenous, and who were familiar with it from childhood, were amazed at the many uses for which the wood could be employed, the beauty of finish, the elegance of the furniture made from the wood, the magnificent carvings, handsome veneers and inlaid panels. Until now they had valued it for its durability, having known it as good for fence rails and posts.

Railway officials and engineers here learned that catalpa was the peer of mahogany for passenger-car finish, and *par excellence* for telegraph poles and railway sleepers, for here were samples which had served their purpose in the track for one-third of a century with no indications of decay, this being four times the life of white oak, seven times the durability of pine, and twice as long as creosoted ties.

Paper manufacturers found a new value in catalpa for wood pulp and book paper, both of which were in this exhibit.

Botanical writers had published that catalpa wood was not strong. That was disproven at the St. Louis exhibit by practical and most severe tests.

Objectors had pronounced the trees to be small, crooked, and without material

value. In answer to this a dozen large-sized photographs of natural trees in forests showed the true habit of *Catalpa speciosa* as being very tall and straight, while actual trees by their presence gave their own evidence, and proved that these people were mistaken in the variety of catalpa which had come under their observation.

Railway presidents visited the exhibit and were convinced. Other companies sent special officials and engineers to examine the exhibit, some of whom also visited the native forests on the Wabash, and found they had not been misrepresented.

Foreign governments sent representatives to investigate the subject, and from their reports have begun the extensive planting of this American tree.

Heretofore manufacturers had used only those woods which had required more than a century to grow, and after these forests have been consumed, will require an equal period for their reproduction. Never before had a rapidly maturing tree been found suitable for any purpose of the manufacturer other than as fuel, and such have slight value in heat units.

It was a revelation to see a railway car of real magnificence entirely constructed from a tree which had been produced in less than two decades. The problem of forest reproduction for lumber, paper, cross-ties, for the uses of transportation, manufactures, the mines as well as for agriculture, was solved by this exhibit.

The result has been an awakening among consumers of wood such as has never before been experienced. The demands for seeds and trees of *Catalpa speciosa*, which can be relied upon as true, is far greater than can be supplied, while many hundreds of thousands of inferior trees are still being scattered throughout the world by careless dealers.

A number of great railway systems have begun the planting of forests, for the purpose of growing ties and lumber,

although some officials still look upon the work as experimental.

The first large plantation of catalpa made in the United States was in Southeast Missouri, half a century ago, by the Iron Mountain Railway. The officials of this pioneer railway were convinced, even at that early period, that forest planting by railways would in time become necessary, and that the catalpa had all the essential qualities for railway timber, and two hundred acres were devoted to this experiment.

The road had largely been constructed upon ties of catalpa, all the telegraph poles of this wood were used so far as they could be procured, while no other timber was purchased for fence posts in the region where they existed.

Seeds of *Catalpa speciosa* from the Wabash Valley had floated down the Ohio and Mississippi Rivers, and been carried to the interior by the overflowing back waters, and some of these trees were growing along the railway line; while the southern or *bignonioides* catalpa existed in Arkansas and Missouri. Thus both varieties were present in this locality, and, of course, many hybrids. At this period the varieties had not been classified; they were called indiscriminately catalpa.

Unfortunately the seed for this first experiment was purchased from seedsmen, who had imported from Japan the small ornamental variety, *kempferii*, and after years of waiting, obtaining only shrub growths; the plantation was abandoned and mostly destroyed. While this Japanese variety yet remained a seed firm gathered thousands of pounds of seed, which was distributed throughout Europe and America under the impression that it was the great forest tree, *Catalpa speciosa*.

The demand for catalpa seed which followed the agitation about thirty years ago also caused the distribution of vast quantities of *bignonioides* seed, while the difficulty and expense of gathering seed from large trees, a hundred feet in height,

discouraged the distribution of the true variety.

The next plantation, six hundred and forty acres, was made at Farlington, Kan., by Mr. H. H. Hunnewell, for the Kansas City, Ft. Scott and Gulf Railway Company, now part of the Frisco system. The mistake was made here of too close planting, twenty-seven hundred trees per acre, and the constant refusal of the manager to thin them and allow sufficient space for the trees, although I have urged him to do so frequently during the past eight years.

During the past year, under a new management, \$100,000 worth of fence posts have been removed, leaving permanent trees on the tract. Instead of \$100,000, which has been the income after twenty-five years' waiting, had the trees been planted at greater distance, so they could develop, five hundred and forty-four thousand first-class cross-ties should have been produced, worth half a million dollars.

The next experiment was made by the Pennsylvania Railway Company eighteen years ago on the lines in Indiana, the wrong varieties being purchased. They were planted in hard, unplowed ground along the track, or right of way, where the telegraph linemen destroyed their usefulness by cutting to prevent interference with the wires. The prominence of this row of two hundred thousand trees, mutilated, struggling against both man and nature, has been a serious drawback to the progress of timber planting and has deterred the engineers of the Pennsylvania Railway from making other more rational efforts at catalpa growing.

Mr. L. W. Yaggy, a capitalist of Lake Forest, Ill., planted five hundred acres of catalpa some dozen years ago on his farm near Hutchinson, Kan. This has been one of Mr. Yaggy's most profitable investments, as he declares. He recently sold \$30,000 worth of fence posts from the thinnings of this tract, yet has as many remaining which are for sale.

Several more recent plantings have been made by private parties, ranging from fifty to five hundred acres.

Three years ago the more modern system of planting at greater distances was begun, the plantation of the Illinois Central Railway Company, at Harahan, La., eight miles from New Orleans, being prominent. This tract was formerly a sugar plantation, the land having been left in high ridges seven feet apart, with many deep ditches for drainage. This distance seemed too close, and part of the tree rows were planted on alternate sugar-cane ridges, while in the rice land the trees were set 8 x 8 feet. There are two hundred and fifty acres planted. The soil is alluvial, delta land, but of a character quite difficult to work, and was dense with Bermuda grass and wild cane, having been abandoned for cultivation many years since. It is expensive to cultivate, but the trees are growing rapidly. This company has also two hundred acres near DuQuoin, Ill., planted a year later, which are making good progress. This territory is underlaid with coal, which is being mined, and it is expected that the thinnings will be utilized here for mine timbers.

The Louisville and Nashville Railway has eight large plantations of catalpa, one at Pensacola, Fla., in pure highland sand. This sand has produced a crop of yellow pine timber. It grows good pecan trees; deep-rooted pear trees flourish, and the catalpa trees are doing well. They were planted in the spring of 1904. Another plantation is in the Alabama river bottoms, at Selma, Ala., one on the banks of Licking river, near Newport, Ky., others at Shawneetown and McLeansboro, Ill. All are doing well, but are too recent to determine results.

The Southern Pacific Railway Company distributed several thousand trees through Texas, portions being in the arid region, where irrigation is required. The officials report them to be in very satisfactory condition.

The New Orleans and Northeastern Railway distributed some thousands of trees along the line through Louisiana and Mississippi. Passengers have reported to me that they give promise of excellent results.

The New England railways have planted perhaps one hundred thousand trees, a portion by the Boston and Maine Railway, at South Lawrence, Mass., in the valley of the Merrimac River; others by the Boston and Albany Railway, near Newton, Mass. If these prove satisfactory, the experiment will be extended.

In Utah, some years since, the Rio Grande Western Railway established a nursery of sixty-five thousand catalpa trees at Provo. Part of these were transplanted, two years ago, to points along the line between Ogden, Utah, and Grand Junction, Col. In most part they have been abandoned and destroyed by fires and stock. One fine grove remains at Salt Lake City, which will be taken care of until it is determined how the alkaline soil affects the catalpa tree. There are many fine catalpa trees in Utah which formed the basis for this extensive planting.

The Florida East Coast Railway was the last to undertake catalpa planting for cross-ties, a tract having been purchased between Jacksonville and St. Augustine, which is now being planted. Upon this tract, in the dooryard of a farmer, Mr. F. J. Register, and in exactly the same pure sand of Florida, stands a catalpa tree which was planted in 1896 as a small switch. After but nine years' growth this tree measures fifty-seven inches girth (nineteen inches thickness) at six feet above the ground. This nine-year-old Florida tree will now make four cross-ties. A square mile of such trees would furnish in one decade enough sleepers to build two hundred and thirty-seven miles of new track, or supply the renewals for twenty-three hundred and seventy miles of railway.

At Gainesville and at Pensacola, Flor-

ida, as well as at other points, there are trees which show an equally good record for rapid growth, while at New Orleans trees fourteen years old are twenty-six inches in diameter. All of which goes to show that the South, and especially Florida, is best adapted to the growing of catalpa forests. Several parties and companies have signified their intention of planting from one thousand to several thousand acres of forest as soon as catalpa trees can be secured and land prepared on which to plant.

The Mexican Central Railway last year planted several thousand *Catalpa speciosa* trees, and the Mexican government experimented with several thousand. The results have been such that the Secretary de Fomento has purchased as many more, which are being planted at Tampico.

The Dominion government of New Zealand, after extensive trial in thirty experiment stations, is satisfied of the success of the Indiana catalpa in that country, twenty degrees south of the equator.

Quite extensive plantings have also been made in France, Italy, Germany and Great Britain, while in Korea, from seed which we sent last year, trees have grown to be four feet in height in one season's growth. Far more extensive plantings are being made this season by missionaries in Korea, under direction of the International Society of Arboriculture and with its support.

The state of Ohio last year distributed one hundred thousand *Catalpa speciosa* trees, through the State Experiment Station at Wooster, to encourage the farmers in tree planting, while more are being sent out the present season.

States, nations, corporations and individuals in large numbers have made requests upon this society for trees, seeds, and information upon arboriculture, to all of whom the Society has responded promptly. Two hundred and fifty thousand trees have thus been contributed and two hundred pounds of seed, enough to

produce two and one-half million trees, while two hundred and fifty thousand magazines and printed circulars have been distributed.

The correspondence increased so greatly as to demand the publication of a monthly magazine by the society, and *Arboriculture* was established, with offices at Connersville, Ind.

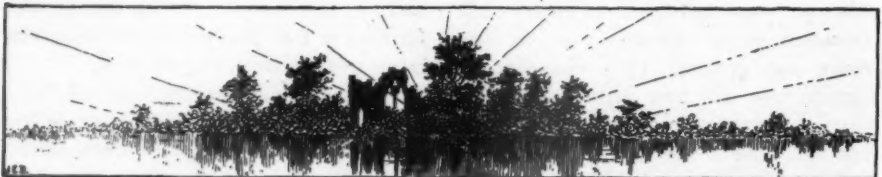
More than one hundred large plantations of catalpa trees are under the direction and supervision of the Society, requiring the constant attention of the secretary, in visiting which, with other duties, requires one thousand miles' travel every week of the year.

This work has not been accomplished without great opposition from many men of prominence, who have placed almost insurmountable obstacles in our way. Often this has been caused through ignorance of the parties, their observations having been confined to the millions of spurious seeds and trees sent abroad by careless dealers. Hence the progress has been slow, with a prolonged, severe struggle, but the consciousness of being right, and the constant friendship and hearty support and coöperation of several railway presidents and high officials of the railways, and the members of our society, have urged me to continue these efforts for so many years, even when the outlook was far from encouraging.

There have been severe criticisms for the prominence given the Catalpa in *Arboriculture*, and of my devotion to this subject; but after half a century of laborious effort by earnest advocates of forestry, it has been impossible to create an interest in actual, practical forest planting, or care of forest by any large number of citizens, when it was realized that a century must elapse before a majority of our forest trees would mature. Only a few soft-wooded and little-valued trees, soft maples, box elder, cottonwood, etc., have been planted to any extent, while the more valuable woods, oak, pine, cypress, walnut, hickory, etc., which require from seventy to six hundred years to reach merchantable condition, have been almost totally neglected.

Americans are migratory. Few old established estates exist. We in America have not yet learned the lessons which the European nations have practised for centuries—that of making the forests a perpetual source of income.

By proving to the world the valuable character of *Catalpa speciosa*, and in the distribution of seeds and trees, *Arboriculture* has been instrumental in creating an interest, and secured the planting of thousands of acres of forest which could not have been accomplished otherwise.



Nature Study

Bird Study II

By Anna Botsford Comstock

Bureau of Nature Study, Cornell University.

GREAT interest in bird architecture and much knowledge of bird skill may be derived by studying the birds' nests, which are easily found in winter, after the protecting foliage has gone. Such nests studied carefully may, in many cases, be identified by the use of Mr. Dugmore's admirable book, "Bird Homes."

Let each member of the Nature Study class find some such nest and describe it according to the following scheme, so that I may be able to identify it:

1. Where you found the nest: (a) If on the ground, describe locality. (b) If on a plant, shrub or tree, tell the species if possible. (c) If on a tree, tell whether it was on a branch, in a fork, or hanging by the end of the twigs. (d) How high from the ground, and what was the locality? (e) If on or in a building, how situated?
2. Did the nest have any arrangement to protect it from the rain?
3. Give the size of the nest, the diameter of the inside and the outside; also the depth of the inside.
4. What is the form of the nest? Are its sides flaring or straight? Is the nest shaped like a cup, basket or pocket?
5. What materials compose the outside of the nest and how are they arranged?
6. Of what materials is the lining made, and how are they arranged? If hair or feathers are used, on what creature did they grow?
7. How are the materials of the nest held together,—that is, are they woven, plastered, or held in place by environment?
8. Had the nest anything peculiar about it either in situation, construction or material that would tend to render it invisible to the casual glance?

OUTLINE FOR BIRD OBSERVATION IN THE FIELD

A note-book should be made ready by preparing each page with the numbers and the words capitalized in the following outline. The part included in parentheses should be committed to memory so as to aid in taking notes. As the bird is ob-

served, the note should be made opposite the appropriate place on the page. The outline given is one which our Nature Study classes used for several years, and was adopted from the outline given by Florence Merriam in her most useful and admirable book, "Birds of Village and Field."

- | NAME. | DATE. |
|---|-------|
| I. SIZE. (Compared with English Sparrow, Robin, Crow.) | |
| II. COLORS. (Bright; dull.) | |
| III. MARKINGS. | |
| 1. TOP OF HEAD. | |
| 2. BACK. | |
| 3. BREAST. | |
| 4. WINGS. | |
| 5. TAIL. | |
| IV. SHAPE. | |
| 1. BODY. (Long and slender; short and stocky.) | |
| 2. BILL. (Short and stout; long and slender; long and heavy; hooked; curved.) | |
| 3. WINGS. (Short and round; long and slender.) | |
| 4. TAIL. (Forked; notched; square; fan shaped.) | |
| V. MOVEMENTS. (Hop; walk; creep up trees; bob head and wag tail; twitch tail from side to side.) | |
| VI. FLIGHT | |
| 1. FAST. (Direct; abrupt and zigzag; smooth and circling.) | |
| 2. SLOW. (Flapping; sailing or soaring; flapping and sailing alternately.) | |
| VII. LOCALITIES FREQUENTED. (Gardens; orchards; roadside fences; meadows; thickets; woods; rivers; lakes; and marshes.) | |
| VIII. FOOD AND MANNER OF OBTAINING IT. | |
| IX. SONG. | |
| 1. MANNER AND TIME OF SINGING. (From perch; in the air.) | |
| 2. CHARACTER OF SONG. (Plaintive; happy; long; short.) | |
| 3. CALL NOTES. (Signal; warning; anger; fear; pain; protest.) | |
| LESSON | |

9. Describe the robin according to above outline.
10. Describe the English Sparrow, both sexes, according to the outline.

This is the eighth of a series of Home Nature Study Lessons for the parents and teachers prepared by the Cornell Bureau of Nature Study. Lessons for children of the Chautauqua Junior Naturalist clubs will appear each month in *Boys and Girls*, Ithaca, New York. The following articles have already appeared in *THE CHAUTAUQUAN*: Leaves, October; Seed Distribution, November; Evergreens I, December; Evergreens II, January; Tree Study in Winter, March; The Cow, April; Beginning Bird Study, May.

HOW TO KNOW THE COMMON BIRDS

The best way to become acquainted with the birds of a locality is to take up a group of closely allied species and learn to distinguish them; then take another group, and so on until all of the sparrows, all of the blackbirds, all of the thrushes, all of the woodpeckers, etc., of a region are perfectly familiar. After two or three years of study according to this plan, a knowledge of the common species of all the bird families of a locality may be gained.

The family which I have chosen for the Home Nature Study class beginning bird study this spring is that of the flycatchers. These birds were chosen because four or five species are common almost everywhere in New York State. Their appearance, attitudes and movements are very characteristic and the songs and nests of several are well known; also, the flycatchers are of the greatest economic importance.

THE FLYCATCHERS AND HOW TO IDENTIFY THEM

The surest way to identify a flycatcher is to note its method of feeding. It sits on some dead branch, or on a fence, or on a telegraph wire, always in a place free from dead branches and other obstructions. It sits erect, the tail drooped except that it is frequently jerked up or down as if to help the bird keep its balance. From this open perch the bird flies up into the air after passing insects, perhaps holding itself poised on its rapidly moving wings while it captures the coveted morsel, then returning to the exact spot from whence it flew. The tail of the dog has always been regarded as an organ most eloquent in expressing the emotions of its owner; the tail of a flycatcher is quite as expressive of the mental activities of the bird,—its movements show plainly an alert, nervous attitude; this twitching seems to indicate that its owner is more than ready to swoop up or down to gather

in some unlucky insect which comes within its range of vision.

There are nine flycatchers which have been found within the boundaries of New York State. They may be distinguished as follows:

The *kingbird* is almost black above and has its tail tipped with white in a most striking way. This character alone distinguishes it from the other species.

The *phoebe* and the *great-crest* are somewhat similar in color above, and neither have wing bars which are noticeable. The *great-crest* is sulphur yellow on the lower side and when in flight the tail is almost cinnamon brown. It lives in the woods especially along water courses, and takes its place high up on the trees and its song is harsh and startling. The *phoebe* is not noticeably yellow beneath and haunts lowly places; it has a peculiar manner of twitching its tail, giving it a sidewise movement, which is most characteristic. The well-known song of the *phoebe* distinguishes it from all the others of the group.

The *olive-sided flycatcher* is about the size of the *phoebe* but is more olive brown above and has brownish dark sides and breast. Two tufts of white feathers on either side the tail show during flight. Its song is a loud and constant "pip-pip-ee." It is found in the Catskills and the Adirondacks where fire or man has made clearings in the forests. It is rarely seen elsewhere in New York.

The *wood peewee* and the *least flycatcher* or *chebec* are colored similarly above and have ivory white wing bars. The *chebec* is only about two thirds as large as the *wood peewee* and is much more likely to frequent the orchard and trees about the house. The songs of the two described elsewhere are very different and easily distinguishable.

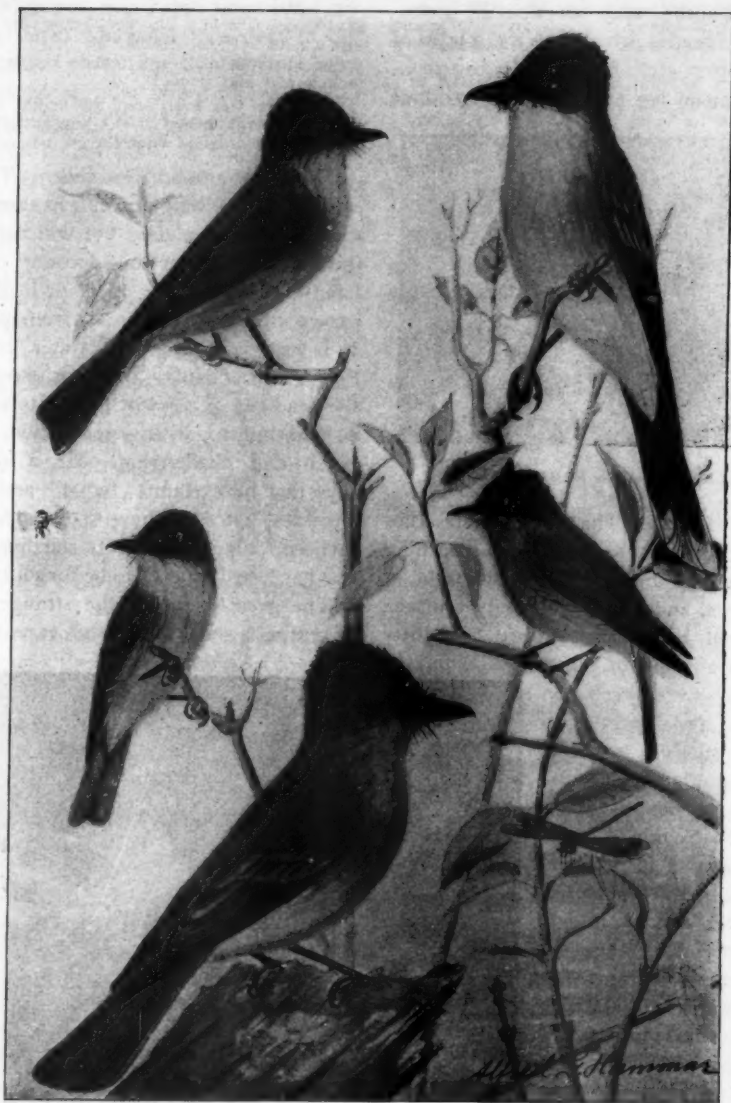
The *alder flycatcher* has brownish or grayish wing bars which distinguish it from the *chebec* and the *green-crested*, and its under parts are whitish instead of yellow like the *yellow bellied*. Its throat is pure white, this being another mark that distinguishes it from the *chebec*, with which it is likely to be confused. It lives in alder thickets, along streams and in swamps.

The *Acadian flycatcher* is olive green above with white throat and whitish breast; its wing bars are buff. It occurs in New York only in the southeastern part of the Hudson Valley; its song is "pe-ah-yuk" or "wake-up."

The *yellow bellied* is another small species and is distinguished from the others by having the entire under parts distinctly yellow, shaded with olive on the throat, breast and sides. It occurs only in retired places having a special liking for low woods and swamps; its song is a short "pewick," it sometimes has a call a little like that of the *wood peewee*.

Of all the above flycatchers only the *kingbird*, the *phoebe*, the *wood peewee* and the *chebec* are common to most localities in New York. Next to these the *great-crest* and the *alder* are most commonly found.

The Kingbird.—This undaunted bird has the reputation of being a fighter, but it is simply a citizen who looks carefully after his rights. When it chooses a site



CHEBEC

PHOEBE

GREAT-CRESTED FLYCATCHER

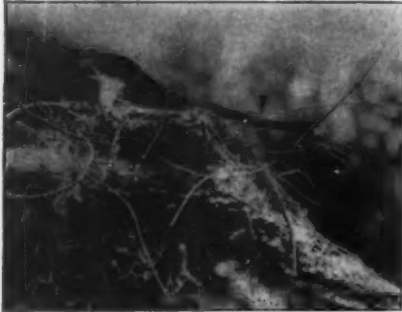
KINGBIRD
WOOD PEEWEE

for a nest it makes up its mind where, out in space, its line fence extends; what though this fence is like the Tropic of Cancer, in that it is quite an imaginary circle, yet woe betide the large bird, especially if it be hawk or crow which dares to push across it. The kingbird is an example of the power of fearlessness

in defending a just cause. Any one who has seen it chase a scared and squawking crow or a hawk trying to beat a dignified retreat, must have paid it the mental tribute which is always due to bravery and daring.

Fully ninety per cent of the kingbird's food is insects and these are of the sort we

can best spare, such as weevils, grasshoppers, beetles which are the adults of wire-worms, etc. It has also a bad reputation among bee men, which it has done



"GO AWAY"—SAYS MOTHER KINGBIRD

little to deserve. The United States Biological Survey has proved this by opening two hundred and eighty-one stomachs of kingbirds, and of all these only fourteen contained bees. There were only fifty bees in all, and of these forty were certainly drones and only four were surely workers. The kingbird is sufficiently astute to leave alone food with so much hot seasoning in it as the worker bees are supposed to have; and by killing off drones it is a help instead of a detriment to the apiarist. The kingbird winters in Central and South America, and, therefore, appears here somewhat late in the season. It builds its nest in orchards and other civilized places, and never takes care to protect it from sight. It has implicit confidence in its own ability to protect its nest.

11. Why should the king bird be preserved by the farmer and fruit grower?

12. Why is a pair of kingbirds of especial value near poultry yards?

13. Describe the kingbird according to the outline given for bird study in the field.

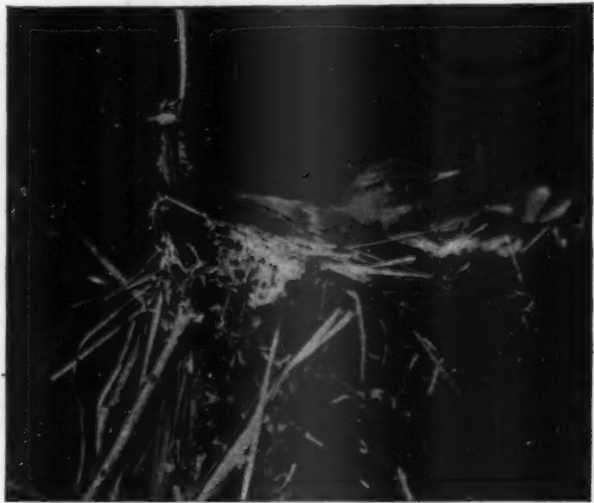
14. Have you ever seen a kingbird's nest? If so, describe it. Do you know the kingbird's note? If so, describe it.

15. Do both male and female kingbirds attack hawks and crows?

16. Have you ever seen the bright orange feathers on the crown of the kingbird's head? They are only visible when the crest is raised.

The Great-crested Flycatcher.—This is as large as the kingbird and has more of the color of the phoebe, but will never be mistaken for either on account of its habits. It lives in the woods or in thickly grown orchards and away from people. It is especially fond of water courses through woodlands. Its favorite perch is the dead top of a forest tree. Its song is a loud interrogative exclamation, quite harsh and challenging. Mr. Chapman says that he exclaims "what" and then chuckles, but some have spelled the note "wheep." It is sufficiently startling after one has heard it never to be forgotten.

The great-crest has the strange habit of putting a snake skin about its nest. The



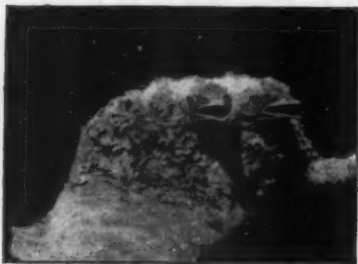
THE ALDER FLYCATCHER ON NEST

reason for this probably lies thousands of years back in the history of the species and has nothing to do with present day conditions. A species of flycatcher in South America and another in Arizona have a similar habit; and they all prob-

peewees on the Cornell campus resting on the telephone wires "between bites." The wood peewee is a constant singer, and

bars distinguish it readily from the phoebe. It is a most useful bird to our forests, feeding upon insects which injure both timber and leaves.

The wood peewee's nest is an exquisite structure; it is beautifully curved inside and made soft with fibrous materials. On the outside it is usually decorated with lichens, and is so smoothly connected with the limb on which it rests, that it seems almost a part of it.



YOUNG PEEWEES

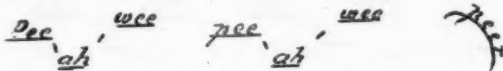
its plaintive, sweet trissyllabic "pee-ah-wee" is a certain means of identification. It does not flirt its tail quite so constantly nor raise its crest quite so excitedly as does the phoebe. Its ivory white wing-

28. Do you know the wood peewee? Where do you find it?

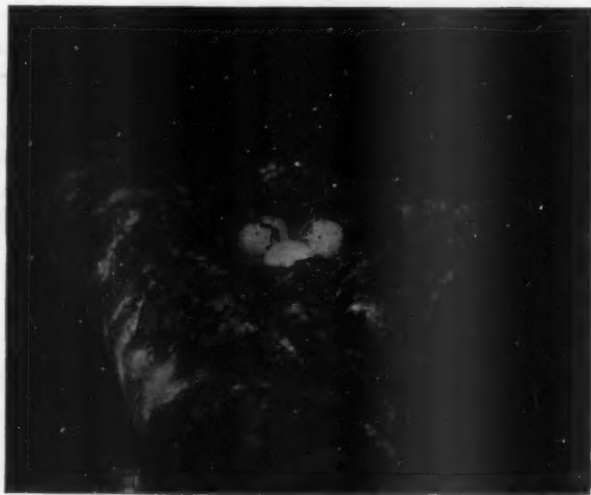
29. Have you heard its song? Describe.

30. Did you ever see its nest? What advantage would it be to a nest to be covered with lichens?

31. Describe the wood peewee according to outline given for field study.



SONG OF THE WOOD PEEWEE



NEST AND EGGS OF WOOD PEEWEE



SURVEY OF CIVIC BETTERMENT

A SIGNIFICANT FOREST CONGRESS

The American Forest Congress held in Washington January 3 to 6, 1905, was the greatest gathering of its kind ever held in the United States. Not only was it great in point of numbers but it represented many varied interests: lumbermen, grazers, railroadmen, miners, and irrigation men, as well as educators and statesmen, met in a spirit of amity to consider a question of vital interest to all: the preservation of the American forests and the water supply dependent upon the forests.

President Roosevelt opened the Congress with an excellent speech in which he condemned the too common type of American settler that "skins" the land of its timber and passes on to unexploited fields, leaving a denuded waste with an uncertain water supply to the permanent settler, the farmer, who follows. But excellent as were President Roosevelt's remarks they must have had little effect upon the hard headed business men assembled, had they not fortunately coincided on patriotic grounds with the general opinions of the congress, held on grounds purely practical. It was the very evident belief of all the interests assembled that a conservative forest policy pays, and, in fact, that the future economic welfare of large sections of our country is absolutely dependent upon a more careful use of our diminishing forest resources. In the common fear of a timber famine, lumbermen, grazers, and miners, who not long ago fought with each other to obtain the greatest slice of natural wealth so freely bestowed by our government in a reckless land policy, were united in the defense of forestry methods which would make for the welfare of each. This recognition of a common commercial in-

terest among formerly warring elements must mean in the near future a far greater advance in the actual preservation of our forests than could have been accomplished in a century by any number of altruistic persons with no commercial or political influence.

The forest policy advocated by the interests represented was one of conservative use. It was agreed that all timber lands, including forest reserves, should be operated with a view to making them permanently profitable through intelligent cutting and replacing. Smaller profits over a long period rather than large immediate profits and no future were regarded by the representatives of large interests as the most satisfactory. Several speakers advocate the encouragement of a conservative policy among private owners of timber lands by a lower rate of taxes on land producing a second growth of timber, and by extensive protection by government foresters against forest fires. The statement of one prominent lumberman is of interest as showing the business wisdom in conservative lumbering even to that individual who is without social conscience and looks no further than his own lifetime, in his endeavor to make as much as possible in the shortest possible time. Speaking of the experience of his own company this lumberman said:

The timber which the company leaves standing after lumbering consists entirely of small trees below eighteen inches in diameter on the stump, the value of which is considerably below the average run of the forest. Every tree contains more or less material which produces lumber of so low a grade that it hardly pays the cost of manufacture, for the smaller trees saw out the grades of small value in far greater proportion than the larger trees. An extensive investigation was made in our sawmill in Alabama to determine the

amount and comparative values of the grades which trees of different sizes will produce. The result of this experiment proved conclusively the relatively low value of the lumber produced from small trees, and was an important factor in influencing the company to lumber conservatively; in other words, it went still further to establish the bad business policy of putting small trees into the mill rather than leaving them to reach a more profitable size.

The actual users of the forests were more prominent in the Congress than those dependent upon the forests for the regulation of water supply. Those utilizing irrigated lands are as yet of small influence compared to the lumbermen, the miners, and the builders of railroads, all of whom are vitally interested in the cutting of trees. Although it was pointed out that the destruction of the forests at the headwaters of the Mississippi resulted in floods more and more devastating each year, yet it seems improbable that agricultural interests injured by such devastations will in the near future bring any great influence to bear in behalf of the only permanent remedy—reforesting. To the average human being a contiguous dyke is a much more substantial and useful thing than a forest some thousand miles away.

The care of forests for the preservation and control of water supply has, however, a very promising outlook in one direction. The growing use of mountain streams for the development of electricity will of necessity demand the preservation of these sources of power, and the importance of well wooded mountain sides will be evident to all intelligent investing capitalists. To those who have a keen interest in the maintenance of existing conditions may be entrusted the care of mountain forests. The restoration of earlier and better conditions for many streams already injured, involving as it does, considerable expense and time, is a remoter contingency.

At the close of the last session of the Congress Mr. Gifford Pinchot, Chief of

the Bureau of Forestry, in a brief speech impressed upon the Congress these points:

The bulk of the forests of the United States are now, and must always remain in the hands of the private owner; only as the private owner, large or small, the lumberman, the railroad, the miner, or the man who owns the land becomes interested in forestry and carries out its true principles, shall we succeed in practicing forestry in the United States.

Second, the forests now in government control must remain in government control just so far as they are needed for public purposes. We must have forest reserves, and we shall be forced to extend the area of forest reserves later on, not merely by Presidential proclamation, but by purchase. Lands are passing out of the government's hands every day whose return to its ownership is essential to the well-being of the regions where they lie.

Third, we must begin at once the creation of a national forest service in the United States. We are the only one of the great nations whose forest work is in so chaotic a condition. Our task is to create a clean effective body of men for handling these great forest questions, and in general to take up, just so far as the State organizations are unable to take it up, but always to cooperate with them, the care of the general progress of forestry throughout the United States; for more and more I hope to see the Bureau of Forestry act as a helper and assistant not only to the commercial interests, which is our first duty in the matter, but to all interests affected by the forest. I should like to have every member of this Congress go home with the idea that the Bureau of Forestry is the servant of every one of you, and will give you its help to the very utmost limit of its power.

FROM THE FIELD

The German Forests maintain a population of 400,000 and yield \$90,000,000 a year to the national treasury.

Excluding two reserves in Alaska, which cover nearly 5,000,000 acres, there are, in the United States, 51 forest reserves, with a combined area of 57,833,974 acres.

The exhibit of the Forestry Department of the State of Michigan which took a first prize at the St. Louis Exposition was secured by Michigan University, to be used in connection with the course in forestry given there.

The Landscape Architecture Committee of the South Park Improvement Association of

Chicago supplies trees for planting to householders at wholesale rates and offers as well to supply and superintend the planting. It is the desire of the Association to plant trees according to a plan prepared for the whole district. By adherence to a system it is hoped to get the most harmonious results possible under the conditions.

It is reported that Los Angeles, California, is about to plant 3,000 acres of waste land with trees and establish a commercial forest. It is intended that the forest shall be a pleasure ground and park, but through the sale of timber it will be self-supporting as well. Municipally owned forests are not uncommon in Europe, but Los Angeles is said to be the first city in the United States to try the experiment.

Perhaps the most interesting forest reserve belonging to the United States is situated in Porto Rico where a tract of 65,000 acres was set aside by Presidential proclamation in 1903. Of this tract only about 10,000 acres constitute productive forest of commercial importance. About 20,000 acres, however, are wooded, and serve as a check upon floods, which, because of excessive rainfall, are always a menace to the low-lying farms.

The Forestry Committee of the Massachusetts Federation of Women's clubs appeals to all for assistance in arranging a Directory of Historical Trees, giving the location, name, and history of each. The Committee believes that there are many trees of historical and literary interest of which the history and location are known to only a few tree lovers. By calling attention to famous trees it is thought they may be the longer preserved from destruction.

Instances come to light constantly of individuals who have made conservative use of timber lands and found them not only a paying, but a permanently paying, investment. An example from Kentucky is typical. An owner of timber land in that state, in 1847 sold timber at a rate of \$1 per acre, the purchaser removing what he wanted. A considerable amount of timber was left standing. In 1870 a sale was made at a rate of \$2 per tree, the purchaser taking on an average of three trees to the acre. In 1884 a third sale was made on the same terms as those of the sale preceding.

A beautiful monograph entitled "Tree Planting on Streets and Highways" by William F. Fox, superintendent of State Forests, New York, should be in the hands of all those interested in decorative tree planting. Mr. Fox furnishes his readers much practical advice derived from long experience, and upon one phase of tree life his monograph is particularly valuable—that of coloring in trees. A number of beautiful color plates illustrate autumn foliage and enable the tree planter to judge accurately the effects he may obtain by various color combinations.

Whoever intends to plant ornamental trees and shrubs and is not perfectly familiar with the varieties best suited to all conditions of place and climate, should send for information to an agricultural experiment station at one of the large universities. Bulletins which we have at hand from Cornell University and the University of Wisconsin are extremely practical. The merits and shortcomings of various trees,

conditions essential to growth, proper methods of planting and cultivation—all these questions are discussed and many points illustrated by photographs.

The thorough training required of the German forester explains in large degree the superiority of the German forestry system. After graduating from the gymnasium and serving one year in the army the would-be forester spends a year in the forest as an apprentice. He then studies two years in one of the academies and follows this with a year's work in economics and law at the university. This general training is complemented by two years of work in the special departments of forestry knowledge. After passing an examination the applicant then becomes a government officer.

"The Village Improvement Association of Norfolk, Conn., has placed enameled signs on the different species of trees found growing on the Norfolk Green. The signs and the inscription were approved by the chief of the department of dendrology in the bureau of forestry at Washington, D. C. Fifteen different species now growing in the park have been marked, but only one of each species is indicated. The signs, which make a very attractive appearance, bear the scientific name of the tree, the common name, and the native place of the tree. Several years ago much progress was made in the attempt to plant in the park a specimen of all the trees native to Norfolk. Many kinds once planted there have lived and have never been replaced."—*Park and Cemetery*.

A bill effecting a very important forest reform was passed on February by Congress. By this bill the control of federal forest reserves passes from the General Land Office of the Department of the Interior to the Department of Agriculture. Thus, in the future, the Bureau of Forestry will have immediate supervision of the reserved tracts, a condition which should result in their more efficient management.

Another piece of legislation was carried through which does away with one of the worst abuses under the government land policy. Formerly anyone holding land in a forest reserve might relinquish it to the government and elect "in lieu thereof" any other unreserved nonmineral public land. Much comparatively worthless land acquired under other laws was exchanged in this way for valuable timber land with a great resultant loss to the government. Congress has finally repealed the iniquitous law permitting such robbery.

The following advice should be heeded by all who have occasion to prune trees. It is taken from a useful little book issued by the Massachusetts Forestry Association entitled "Practical Suggestions for Tree Wardens." "All cuts made which are of the size of a half-dollar or larger should at once be painted over. A good oil paint of a red-brown color will answer, but the best and cheapest coating is coal tar, which can be obtained at small cost at any gas plant. Pine tar will answer the purpose, but it is not so easily applied as coal tar. In mild weather coal tar does not require melting. A light coating, just enough to cover exposed surfaces, is sufficient. A common lard pail is the best receptacle for carrying the tar, and a short, stiff-bristled, square-

ended brush (a stencil brush, for example) is best adapted to this service. Wind a piece of telegraph wire round the brush handle, and bend one end over to form a hook by which it can be hung on the rim of the pail. A similar hook on the bail of the pail is also useful for hanging the outfit on the ladder rungs."



SOME TREE TOPICS

Forestry in Germany. Illustrated. Raphael G. Zon. *THE CHAUTAUQUAN* 40: 3, 253 (Nov., 1904).

Forestry and Tree Planting. Programs for club use with extensive bibliographies. *THE CHAUTAUQUAN*, 40:3, 279 (Nov., 1904).

German and American Forestry Methods. Guenther Thomas. *Forum*, Jan.-March, 1905.

Saving the Southern Forests. Illustrated.

Overton W. Price. *World's Work*.

The Railroads and Forestry. Illustrated.

John Gifford. *World's Work*.

Forest Making on Barren Lands. Illustrated.

Charles Moreau Harger. *Review of Reviews*.

American Forest Congress, complete proceedings. 400 pages. \$1.25, postpaid.



List of Available Publications of the Bureau of Forestry, United States Department of Agriculture.

The Bureau of Forestry reports the following list of publications available to those who are interested in forest growing or the use of forest products. To such persons the Bureau gladly furnishes upon request new information as rapidly as it is published.

BULLETINS, NUMBERS:

6. Timber Physics, Part I: Preliminary Report.

7. Forest Influences.

8. Timber Physics, Part II: Progress Report.

9. Report on the use of Metal Railroad Ties and on Preservation Processes and Metal Tie-plates for Wooden Ties.

10. Timber: An Elementary Discussion of the Characteristics and Properties of Wood.

12. Economical Designing of Timber Trestle Bridges.

13. Timber Pines of the Southern United States.

17. Check List of the Forest Trees of the United States.

21. Systematic Plant Introduction.

24. A Primer of Forestry, Parts I and II.

26. Practical Forestry in the Adirondacks.

28. A Short Account of the Big Trees of California.

29. The Forest Nursery.

30. A Forest Working Plan for Township Number 40.

31. Notes on the Red Cedar.

32. A Working Plan for Forest Lands Near Pine Bluff, Ark.

33. The Western Hemlock.

34. A History of the Lumber Industry in the State of New York.

35. Eucalypts Cultivated in the United States.

36. The Woodsman's Handbook.

37. The Hardy Catalpa.

38. The Redwood.

39. Conservative Lumbering at Sewanee, Tenn.

40. A New Method of Turpentine Orchard-ing.

41. Seasoning of Timber.

42. The Woodlot.

43. A Working Plan for Forest Lands in Hampton and Beaufort Counties, S. C.

44. The Diminished Flow of the Rock River in Wisconsin and Illinois, and Its Relation to the Surrounding Forests.

45. The Planting of White Pine in New England.

46. The Basket Willow.

47. The Forests of Texas.

48. The Forests of Hawaii.

49. The Timber of the Edwards Plateau of Texas.

50. Cross-tie Forms and Rail Fastenings, with Special Reference to Treated Timbers.

52. Forest Planting in Western Kansas.

53. Chestnut in Southern Maryland.

CIRCULARS, NUMBERS:

12. Southern Pine: Mechanical and Physical Properties.

15. Summary of Mechanical Tests of Thirty-two Species of American Woods.

21. Practical Assistance to Farmers, Lumbermen, and Others in Handling Forest Lands.

22. Practical Assistance to Tree Planters.

23. Suggestions to Prospective Forest Students.

24. A New Method of Turpentine Orchard-ing.

25. Forestry and Lumber Supply.

26. Forest Fires in the Adirondacks in 1903.

28. Practical Assistance to Users of Forest Products.

29. Exhibit of Tree Planting in Woodlots at the Louisiana Purchase Exposition.

31. Exhibits of Forest Nurseries at Louisiana Purchase Exposition.

32. Progress Report on the Strength of Structural Timber.

EXTRACTS REPRINTED FROM YEARBOOKS, NUMBERS:

143. Notes on Some Forest Problems (1898).

144. Work of the Division of Forestry for the Farmer (1898).

186. Progress of Forestry in the United States (1899).

187. Practice of Forestry by Private Owners (1899).

212. Forest Extension in the Middle West (1900).

214. Practical Forestry in the Southern Apalachians (1900).

236. Timber Resources of Nebraska (1901).

241. Grazing in the Forest Reserves (1901).

249. Working Plan for Southern Hardwoods, and its Results (1901).

270. Practicability of Forest Planting in the United States (1902).

274. Influence of Forestry upon the Lumber Industry (1902).

288. Tests on the Physical Properties of Timber (1902).

315. Recent Progress in Timber Preservation (1903).
 329. The Relation of Forests to Stream Flow (1903).

ANNUAL REPORTS OF THE FORESTER FOR 1900, 1901,
 1902, AND 1903

FARMERS' BULLETINS, NUMBERS:

134. Tree Planting on Rural School Grounds.
 173. A Primer of Forestry.



FORESTRY ASSOCIATIONS IN THE UNITED STATES

- American Forestry Association.—Hon. James Wilson, Pres., Secretary of Agriculture. H. M. Suter, Corresponding Secretary, 510 12th St., N. W. Washington, D. C.
 Association for the Protection of the Adirondacks.—Henry S. Harper, Sec'y, Tribune Bldg., New York City.
 California Water & Forest Association.—T. C. Friedlander, Sec'y, Room 45, Mills Bldg., San Francisco, California.
 Cincinnati Forestry & Improvement Association.—J. B. Peaslee, Pres., Adolph Lene, Secretary.
 Colorado Forestry Association.—Jabez Norman, Denver, Colo.
 Connecticut Forestry Association.—Miss Mary Winslow, Weatogue.
 Forest & Water Society of Southern California.—Wm. H. Knight, Los Angeles, Cal.
 Forestry, Water Storage & Manufacturing Association of the State of New York.—John C. Durgin, Sec'y, 1 Broadway, New York.
 Franklin Forestry Society.—W. G. Bowers, Sec'y, Chambersburg, Pa.
 International Society of Arboriculture.—Gen. Wm. J. Palmer, Pres., Colorado Springs, Colo. John P. Brown, Sec'y, Connerville, Indiana.
 Iowa Park & Forestry Association.—Prof. L. H. Pammel, Pres., Ames, Iowa. Thos H. McBride, Sec'y, Iowa City, Iowa.
 Massachusetts Forestry Association.—Edwin A. Start, Sec'y, 1118 Tremont Bldg., Boston.
 The Mazamas.—Martin W. Gorman, Sec'y, Portland, Oregon.
 Michigan Forest, Game & Fish Protective Association of Saginaw.—R. P. Alden, Saginaw, Mich.
 Minnesota State Forestry Association.—Wm. T. Cox, Sec'y, St. Anthony Park, Minn.
 Nebraska Park & Forestry Association.—L. D. Stilson, York, Neb.
 New Jersey State Forest Council.—Geo. M. Powell, Pres., Newfield. Wm. Purvis, Sec'y, Rosenhayn.
 New York State Fish, Game & Forest League.—E. C. Gould, Sec'y, Seneca Falls.
 North Carolina Forestry Association.—W. W. Ashe, Sec'y, Chapel Hill.
 North Dakota State Sylvatony Society.—Miss Mary G. Buck, Sec'y, Lakota.
 Ohio State Forestry Society.—Prof. W. R. Lazenby, Sec'y, Columbus, Ohio.
 Oregon Forestry Association.—Martin W. Gorman, Sec'y, Portland, Oregon.
 Pennsylvania Forestry Association.—Mrs. John P. Lundy, Sec'y, 245 South 18th Street, Philadelphia, Pa.

- Pocono Protective Fire Association.—Thomas L. Hodge, Philadelphia, Pa.
 Salt River Valley Users' Association.—Frank E. Parker, Phoenix, Ariz.
 Sierra Club.—Prof. W. R. Dudley, Stanford University, California.
 Society for the Protection of the New Hampshire Forests.—Joseph T. Walker, Sec'y, Concord, N. H.
 Society of American Foresters.—Gifford Pinchot, Pres., Washington, D. C. Geo. B. Sudworth, Sec'y, Washington, D. C.
 Tennessee Forest Association.—L. C. Glenn, Sec'y, Vanderbilt University, Nashville, Tenn.
 Utah Forestry Association.—A. C. Nelson, Sec'y, Salt Lake City.
 Vermont Forestry Association.—Ernest Hitchcock, Sec'y, Pittsford, Vt.
 Washington Forestry Association.—Edmond S. Meany, Sec'y, Seattle.
 Wyoming State Forest Association.—W. C. Deming, Sec'y, Cheyenne.



STATE OFFICERS FOR FOREST WORK

- Connecticut.—State Forester, Austin F. Hawes, New Haven.
 Indiana.—State Board of Forestry: F. C. Carson, president, Michigan City; W. H. Freeman, secretary, Indianapolis.
 Kansas.—Commissioner of Forestry, R. M. Wright, Dodge City.
 Louisiana.—Commissioner of Forestry, A. W. Crandall (*ex officio*), State Land Office, Baton Rouge.
 Maine.—Land Agent and Forest Commissioner, Edgar E. Ring, Augusta.
 Maryland.—State Geologic and Economic Survey, Dr. William B. Clark, State Geologist, Baltimore.
 Massachusetts.—State Forester, Alfred Akerman, State House, Boston.
 Michigan.—Forestry Commission, Hon. Chas. W. Garfield, president, Grand Rapids; Edwin A. Wildey, secretary, Lansing; State Forest Warden, Filibert Roth, Ann Arbor.
 Minnesota.—Chief Fire Warden, Gen. C. C. Andrews, St. Paul. Forest Commissioner, Samuel C. Iverson, St. Paul. State Forestry Board, Sidney M. Owen, president, Minneapolis; Gen. C. C. Andrews, secretary, St. Paul.
 New Hampshire.—Forest Commissioner, George H. Moses, secretary, Concord.
 New Jersey.—Geological Survey, Henry B. Kummel, State Geologist, Trenton.
 New York.—Forest, Fish and Game Commission, Hon. D. C. Middleton, commissioner, Watertown. Superintendent of State Forests, William F. Fox, Albany.
 North Carolina.—Geological Survey, Prof. J. A. Holmes, State Geologist, Chapel Hill.
 Oregon.—Game and Forestry Warden, L. P. W. Quimby, Portland.
 Pennsylvania.—Department of Forestry, Robert S. Conklin, commissioner, Harrisburg. State Forestry Reservation Commission, Isaac B. Brown, secretary.
 West Virginia.—Geologic and Economic Survey, Dr. I. C. White, superintendent, Morgantown.
 Wisconsin.—State Board of Forestry: John M. Olin, president, Madison; T. J. Cunningham, secretary, Chippewa Falls. Superintendent of State Forests, E. M. Griffith, Madison.

ANSWERS TO SEARCH QUESTIONS ON JUNE READINGS

SOCIAL AND INDUSTRIAL RUSSIA

1. 2,100,000 square miles. 2. The Greek Church. It has no common head like the Roman pope but is national in its organization. The Tzar is really the head of the Russian branch of the Church. There are many dissenting sects. 3. The siege and fall of Sebastopol. 4. Ten.

BERLIN CELEBRITIES

1. Adolph Harnack is a famous Protestant theologian. His important work has been done in the history of the ancient church. Otto Pfeleiderer also is a theologian; he has written among other things "Paulinism" and "Philosophy of Religion on the Basis of Its History." 2. Helmholtz was a celebrated physiologist and physicist noted especially for his discoveries in optics and acoustics. Virchow was

celebrated as an anatomist, physiologist, and anthropologist. Von Sybel was an historian. 3. Adolph von Menzel was born December 8, 1815. He became first known as an illustrator, particularly by reason of his illustrations of the life of Frederick the Great. He used the same subject for a number of historical paintings, famous among which is the "Evening Concert of Frederick the Great." Another noted picture is "The Forge." Menzel was raised to the nobility and granted the title of "Excellency." He was able to work up to the time of his death, Feb. 9, 1905. 4. Theodor Mommsen's most famous work is his "Roman History." 5. Amy Foy's book on German life is entitled "Music Study in Germany," (Macmillan, \$1.25). 6. Euterpe; one of the Muses, a divinity of joy and pleasure and the patroness of flute-players. She favored primitive folk music more than polished, artistic music.

Chautauqua Assembly Calendar, 1905

Place	Date	Recognition Day
ALABAMA		
Talladega,	Aug. 3-17.	Aug. 12.
Manager, Wellington J. Vandiver, Talladega.		
C. L. S. C. Representative, Wellington J. Vandiver, Talladega.		
CALIFORNIA		
Long Beach,	July 11-23.	
Manager, G. R. Crow, Los Angeles.		
C. L. S. C. Representative, G. R. Crow, Los Angeles.		
Pacific Grove,		July 18.
Manager, Chas. Filbin, Frisco.		
C. L. S. C. Representative, Mrs. E. J. Dawson, San Jose.		
COLORADO		
Boulder,	July 4-Aug. 7.	
Manager, F. A. Boggess, Boulder, Colo.		
Palmer Lake,	July 10-Aug. 4.	Aug. 4.
Glen Park,		
Manager, Frank McDonough, E. & C. Bldg., Denver, Colo.		
C. L. S. C. Representative, C. F. McCarnine, McPhee Bldg., Denver, Colo.		
CONNECTICUT		
Forestville,	July 13-27.	July 20.
Manager, Daniel W. Howell, 411 Windson Ave., Hartford, Conn.		
C. L. S. C. Representative, Geo. M. Brown.		
ILLINOIS		
Clinton,	Aug. 18-28.	
Manager E. B. Bentley, Clinton, Ill.		
Dixon,	July 30-Aug. 14.	
Manager, Hon. Adam Krape, Lena, Ill.		
C. L. S. C. Representative, Rev. W. H. Hartman, Foreston, Ill.		
Lithia Springs,	July 29-Aug. 15.	
Manager, Rev. Jasper L. Douthit, Lithia, Ill.		
C. L. S. C. Representative, Winifred Douthit, Shelbyville.		
Moline,	July 13-23.	
Manager W. V. Richards, Moline, Ill.		
C. L. S. C. Representative, Mrs. E. A. Shipley, es Moines, Ia.		
Ottawa,	Aug. 18-26.	Aug. 19.
Manager, R. C. Jordan, Ottawa, Ill.		
C. L. S. C. Representative, W. J. Hoffman, Ottawa, Ill.		
Petersburg,	Aug. 9-24.	
Manager, Rev. Geo. H. Turner, Petersburg, Ill.		
Piasa,	July 20-Aug. 16.	July 31 or Aug. 14.
Manager, W. O. Paisley, Lincoln, Ill.		
Pontiac,	July 22-Aug. 6.	July 27.
Manager, A. C. Folsom.		
C. L. S. C. Representative, Mrs. Alice H. Limerick, Winfield, Kansas.		

Chautauqua Assembly Calendar

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Rockford, Aug. 17-31. Aug. 24.
Manager, A. C. Folsom, Pontiac, Ill.
C. L. S. C. Representative, Alice H. Limerick, Winfield, Kansas.

INDIANA

Rome City, July 19-Aug. 11. Aug. 4.
Manager, Rev. J. F. Snyder, La Grange, Ind.
Secretary, Katherine Harper, Goshen, Ind.
Remington, Aug. 12-27. Aug. 17.
Manager, Robert Parker, Remington.
Winona Lake, July 5-Sept. 1.
Manager, Sol C. Dickey, 118 Monument Pl., Indianapolis, Ind.
C. L. S. C. Representative, Emma Anderson, 118 Monument Pl., Indianapolis, Ind.

IOWA

Allerton, August 16-23.
Manager, John A. Shannon, Allerton, Ia.
C. L. S. C. Representative, Miss Inez F. Kelso, Humeston, Ia.
Centerville, Aug. 4-13.
Manager, J. M. Beck, Centerville, Ia.
C. L. S. C. Representative, Inez F. Kelso, Humeston, Ia.
Marshalltown, Aug. 12-20.
Manager, Elijah Brown Jones, Marshalltown, Ia.
C. L. S. C. Representative, Edna Fullerton, Marshalltown.
Waterloo, July 11-Aug. 2. July 20.
Manager, Rev. Frank L. Loveland, Waterloo, Ia.

KANSAS

Beloit, July 31-Aug. 6.
Manager, T. H. J. Taggart, Concordia, Kansas.
C. L. S. C. Representative, Mrs. A. E. Shipley, 1328 E. 13th St., Des Moines, Ia.
Cawker City, Aug. 3-13.
Manager, E. L. Huckell, Cawker City.
C. L. S. C. Representative, Miss Hamilton, Wichita, Kansas.
Concordia, July 28-Aug. 6.
Manager, J. C. Porter, Jewell City, Kansas.
C. L. S. C. Representative, Mrs. A. E. Shipley, Des Moines, Ia.
Lincoln Park, Aug. 3-13.
Manager, E. L. Huckell, Cawker City, Kansas.
C. L. S. C. Representative, Miss Hamilton, Wichita, Kas.
Ottawa, July 3-14. July 13.
Manager, C. S. Nusbaum, Cherryvale, Kansas.
C. L. S. C. Representative, Alma F. Piatt, Wichita, Kansas.
Wathena, Aug. 5-13. Aug. 11.
Manager, A. W. Themanson, Wathena, Kansas.
C. L. S. C. Representative, E. Jeanette Zimmerman.
Winfield, June 20-30. June 26.
Manager, M. L. Wortman, Winfield, Kans.
C. L. S. C. Representative, Alma F. Piatt.

KENTUCKY

Lexington, June 28-July 8.
Manager Dr. W. L. Davidson.
Owensboro, Aug. 2-17. Aug. 14.
Manager, W. G. Archer, Owensboro, Ky.

MAINE

Ocean Park, July 20-Aug. 31. Aug. 10.
Manager, Rev. W. K. Twort, 12 Reservoir St., Lawrence, Mass.

MARYLAND

Mountain Lake Park, Aug. 3-29.
Manager, Dr. W. L. Davidson, 1711 Grant St., Washington, D. C.
Washington Grove, July 4-Sept. 1. Aug. 17.
Manager, Rev. W. K. Smith, Room 382, Navy Dept., Washington, D. C.

MASSACHUSETTS

Northampton, July 11-21.
Manager, Dr. W. L. Davidson, 1711 Grant St., Washington, D. C.

MISSOURI

Carthage, July 3-12.
Manager, H. J. Fitzer, Carthage.
C. L. S. C. Representative, Mrs. Alma F. Piatt.
Pertle Springs, Aug. 10-18.
Manager A. C. Stewart, 401 N. 4th St., St. Louis, Mo.
C. L. S. C. Representative, Mrs. A. E. Shipley, 1328 E. 13th St., Des Moines, Ia.

NEBRASKA

Beatrice, July 6-18.
Manager, Fuller Swift, Des Moines, Ia.
C. L. S. C. Representative, Julia Fuller, Beatrice, Neb.

Chautauqua Assembly Calendar

NEW HAMPSHIRE

Hedding, Aug. 7-26.
Manager, Rev. E. E. Dorion, Franklin Falls, N. H.

NEW YORK

Chautauqua, June 29-Aug. 27. Aug. 16.
Manager, Chautauqua Institution, Chautauqua, N. Y.

OHIO

Bethesda, Aug. 2-16. Aug. 9.
Manager, Rev. M. J. Slutz, Barnesville, O.
C. L. S. C. Representative, Rev. P. U. Hawkins, Barnesville, O.
Celena, July 21-31.
Manager and C. L. S. C. Representative, Rev. Milton W. Brown, Westwood, Cincinnati, O.
Delaware, Aug. 4-14. Aug. 14.
Manager, Rev. Milton W. Brown, Westwood, Cincinnati, O.
Defiance, Aug. 3-13.
Manager, Rev. A. P. Murphy, Defiance.
Lima, July 21-31.
Manager and C. L. S. C. Representative, Rev. Milton W. Brown, Westwood, Cincinnati, O.
Wellston, Aug. 11-21.
Manager and C. L. S. C. Representative, Rev. Milton W. Brown, Westwood, Cincinnati, O.

OKLAHOMA

Kingfisher, June 1-11.
Manager, J. H. Parker, Kingfisher.
Oklahoma, June 15-22.
Manager, E. A. Tinkham, Oklahoma City, Okla.
C. L. S. C. Representative, Mrs. A. H. Limerick, Winfield, Kansas.

PENNSYLVANIA

Mt. Gretna, July 3-Aug. 4.
Manager, N. C. Schaefer, Harrisburg.
C. L. S. C. Representative, L. E. McGinnis, Steelton, Pa.
Naomi Pines, July 10-Aug. 5.
Manager, G. P. Eckles.
C. L. S. C. Representative, J. H. Morgan, Ph. D., Carlisle.
Ridgeview Park, July 28-Aug. 8. Aug. 4.
Manager, W. C. Weaver, Homestead, Pa.
C. L. S. C. Representative, W. C. Weaver, Homestead, Pa.

SOUTH DAKOTA

Big Stone, June 29-July 10. July 7.
Manager, S. R. Golden, Big Stone, S. D.
C. L. S. C. Representative, Mrs. Etta Vosburgh, Milbank, S. D.
Madison, June 24-July 1.
Manager, H. P. Smith, Madison, S. D.
C. L. S. C. Representative, Rev. Hugh Robinson, Madison.

TENNESSEE

Monteagle, July 3-Aug. 25. July 20.
Manager, M. B. Pilcher, Nashville, Tenn.
C. L. S. C. Representative, Miss Effie Scoville, Nashville, Tenn.

VIRGINIA

Shenandoah Valley, Aug. 4-16. Aug. 12.
Manager, A. P. Funkhouser, Harrisonburg.
C. L. S. C. Representative, Miss Jessie Funkhouser, Harrisonburg.

WEST VIRGINIA

Moundsville, Aug. 1-10. Aug. 5.
Manager, C. B. Graham, 623 Main St., Wheeling, W. Va.
C. L. S. C. Representative, B. B. Evans, Huntington, W. Va.

WISCONSIN

Chetek, July 11-21.
Manager, J. W. Bell, Chetek, Wisconsin.
C. L. S. C. Representative, E. D. Claypool, Fayette, Ia.
Marinette, July 13-25. July 21.
Manager, George W. Hanley, Marinette, Wis.
C. L. S. C. Representative, Carrie L. Grout, Rockford, Ill.
Monona Lake (Madison), July 26-Aug. 5. Aug. 3.
Manager, Jas. E. Mosely, Madison, Wis.
C. L. S. C. Representative, Maria F. Hanchet, Madison, Wis.
Waupaca, Aug. 8-22.
Manager, H. A. Larson, Waupaca.

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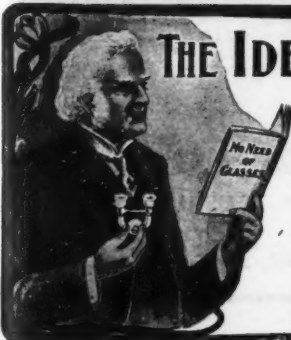
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The Chautauquan for August, 1905

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